Fittings for threaded and soldered connections – series 3000, 4000, 5000

IBP Instalfittings Sp. z o.o.

ISSUANCE DATE

17/12/2025

VALIDITY DATE

17/12/2030

01 Basic information

This declaration is a Type III Environmental Product Declaration (EPD) based on the EN 15804 standard and verified according to ISO 14025 by an independent auditor.

It contains information about the environmental impact of the declared construction materials. These aspects have been verified by an independent body in accordance with ISO 14025. In principle, a comparison or evaluation of EPD data is only possible if all data to be compared have been created in accordance with EN 15804 (see section 5.3 of the standard).

EPD OWNER	**IBP Instalfittings Sp. z o.o.** Stanisława Zwierzchowskiego 29 Street, 61 - 248 Poznań, Poland www.ibpgroup.com.pl
PROGRAMME OWNER	**Instytut Techniki Budowlanej (ITB)** Filtrowa 1 Street, 00 - 611 Warsaw, Poland e-mail: energia@itb.pl, www.itb.pl
LCA ANALYSIS	A1 - A3, A4, C1 - C4 and D according to EN 15804 (cradle to gate with options)
YEAR OF EPD DEVELOPMENT	2025
DECLARED SERVICE LIFE	25 years
PCR	ITB-PCR A document (based on EN 15804)
DECLARED UNIT	1 kg of product
REASON FOR IMPLEMENTATION	B2B
REPRESENTATIVENESS	Global products, 2023

ITB cooperates with other operators of EPD programmes through the ECO-PLATFORM, (http://www.eco-platform.org/) in order to coordinate efforts to support industrial sectors while reducing verification efforts in different countries.

02 Manufacturer

Conex Bänninger is a world leader in fittings used for copper, carbon steel, plastic and stainless steel pipes.

The company's comprehensive product range consists of plumbing fittings and valves for domestic, commercial and industrial applications, working with customers in the plumbing, heating, ventilation, gas, refrigeration and medical industries.

All products covered in this study are manufactured and/or stocked at the following production facilities: the IBP Instalfittings plant at Stanisława Zwierzchowskiego 29 Street in Poznań (Poland), the IBP Instalfittings plant at Za Motelem 2A Street in Sady/Tarnowo Podgórne (Poland), the IDC Fluid Control Co. plant in Yuhuan (China), Taizhou Double Winners Copper Co. plant (China), Ningbo Jintian Copper Tube Co. plant (China), Linhai Yongsheng Pipe Co. plant (China), IBP ATCOSA plant in the Polígono Industrial, Quintos-Aeropuerto in Córdoba (Spain), and the Conex Universal Limited plant at Global House, 95 Vantage Point, Pensnett Trading Estate in Kingswinford (United Kingdom).

Fig. 1. IBP Instalfittings plant at Stanisława Zwierzchowskiego Street 29 in Poznań (Poland)

Fig. 2. IBP Instalfittings plant at Za Motelem Street 2A in Sady/Tarnów Podgórny (Poland)

Fig. 3. IBP ATCOSA plant, Poligono Industrial, Quintos-Aeropuerto in Cordoba (Spain)

03 Products description and application

Series 3000, 4000, and 5000 fittings belong to the group of connectors for threaded and soldered joints.

Series 3000 – bronze fittings for threaded connections

- Material: bronze CuSn5Zn5Pb2-C (CC499K-DW) in accordance with EN 1982, modified to meet the "UBA List" requirements,
- Manufactured in accordance with EN 1254-4,
- Designed for connecting pipes made in accordance with EN 1057+A1,
- Threads made in accordance with EN 10226-1 and EN ISO 228-1.

Series 4000 – bronze fittings for capillary soldering and threaded connections

- Material: bronze CuSn5Zn5Pb2-C (CC499K-DW) in accordance with EN 1982, modified to meet the "UBA List" requirements,
- Manufactured in accordance with EN 1254-1, EN 1254-4,
- Designed for connecting pipes made in accordance with EN 1057+A1,
- Threads made in accordance with EN 10226-1 and EN ISO 228-1,
- Joining method – soft or hard capillary soldering (series 4000), and soldering and threaded connection (series 4000G).

Series 5000 – Copper fittings for capillary soldering (5000G – fittings for soldering and threaded connections)

- Material: Copper Cu-DHP (CW 024A) in accordance with EN 12449,
- Manufactured in accordance with EN 1254-1, EN 1254-4, and EN 1254-5,
- Designed for connecting pipes made in accordance with EN 1057+A1,
- Threads made in accordance with EN 10226-1 and EN ISO 228-1,
- Joining method – soft or hard capillary soldering (series 5000), and soldering and threaded connection (series 5000G).

Application:

The fittings are intended for connecting copper pipes in water installations and water heating systems.

The table presents a range of bronze and copper fittings.

Picture	Fitting type	Code	Dimensions
Series 3000			
	Elbow Female x Female Thread	3090	from 1/4" to 1 x 3/4"
	Elbow Male x Female Thread	3092	from 1/4" to 2"
	Union Elbow Female x Male Thread	3098	from 1/4" to 2"
	Elbow 45° Female x Male Elbow	3121	from 3/8" to 1 1/2"
	Tee - Equal with Female Thread All Ends	3130	from 1/4" to 4"
	Female Reducing Tee	3130	from 1/2" x 3/8" x 1/2" to 2" x 1" x 2"

	Cross - Equal Female All Ends	3180	from 3/8“ to 3/4“
	Reduced Coupler Female x Female Thread	3240	from 3/8“ x 1/4“ to 2“ x 1 1/2“
	Reduced Connector Male x Female Thread	3241	from 3/8“ x 1/4“ to 4“ x 3“
	Reduced Connector Male x Male Thread	3245	from 1/2“ x 3/8“ to 2“ x 1 1/2“
	Straight Coupler Female x Female Thread	3270	from 1/4“ to 4“
	Connector Male x Male Thread	3280	from 1/4“ to 4“
	Flanged Plug Male Thread	3290	from 1/4“ to 2“

	Plain Plug Male Thread	3291	from 1/4“ to 2 1/2”
	Blank Cap Female Thread	3301	from 1/4“ to 2”
	Locknut Female Thread	3310	from G 1/4“ to G 2”
	Female Straight Union Connector (with gasket)	3330	from 3/8“ to 2”
	Male x Female Straight Union Connector (with gasket)	3331	from 1/4“ to 2 1/2”
	Female Straight Union Connector (cone)	3340	from 1/4“ to 2”
	Male x Female Straight Union Connector (cone)	3341	from 1/4“ to 2 1/2”
	Extension Connector Female x Male Thread	3526	from 3/8“ x 30 to 1” x 60

	Extension connector Male x Male Thread	3530R	from 3/8" x 40 to 2" x 200
	Connector Male Thread	3531	from 3/8" to 1 1/4"
	Extension Connector Female and Male Thread	3540	from 3/8" x 15 to 1 1/4" x 50
	Control Connector Male Thread	3587	from G 3/8" to G 1/2"
	Plug for Allen Key Male Thread	3588	from G 1/4" to G 1"
	Male Plug	3595	from G 3/8" toG 1/2"
	Regulatory Connector	3599	1/2"
	Female Cap	3599C	from G 1/2" to G 1"

Series 4000			
	90° Double-Socket Elbow	4090	from 15 to 22
	90° Double-Socket Elbow with Air Vent	4090D	from 22 to 28
	90° Female Elbow	4090G	from 10 x 1/4" to 54 x 2"
	90° Nipple Elbow	4092	from 12 to 15
	90° Male Nipple Elbow	4092G	from 10 x 1/4" to 54 x 2"
	90° Angle Union with Cone Seat	4096	from 10 to 54

	90° Female Angle Union with Cone Seat	4096G	from 10 x 1/4" to 54 x 2"
	90° Male Angle Union with Cone Seat	4098G	from 10 x 1/4" to 54 x 2"
	Female Tee	4130G	from 10 x 3/8 " x 10 to 54 x 2" x 54
	Female Tee	4134G	from 15 x 15 x 1/2" to 22 x 22 x 1/2"
	Cross	4180	from 15 to 22

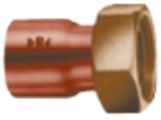
	Angled Tee	4221	from 12 to28
	Male Coupler	4243G	from 8 x 1/4" to 108 x 4"
	Female Nipple Coupler	4246G	from 12 x 3/8" to 54 x 2"
	Female Coupler	4270G	from 8 x 1/4" to 67 x 2 1/2"
	Male Nipple Coupler	4280G	from 12 x 3/8" to 54 x 2"
	Plug	4290	from 15 to 28

	Straight Union with Gasket	4330	from 8 to 54
	Straight Female Union with Gasket	4330G	from 10 x 1/4" to 54 x 2"
	Straight Male Union with Gasket	4331G	from 10 x 1/4" to 76 x 2 1/2"
	Straight Union with Cone Seat	4340	from 8 to 54
	Straight Female Union with Cone Seat	4340G	from 10 x 1/4" to 54 x 2"
	Straight Male Union with Cone Seat	4341G	from 8 x 1/8" to 76 x 2 1/2"

	Male Tank Coupler	4350	from 15 x 1/2″ to 22 x 3/4″
	Female Union Coupler for Gasket Sealing	4359G	from 12 x G 1/2″ to 28 x G 1 1/2″
	Male Union Coupler for Gasket Sealing	4370	from 8 x G 3/8″ to 76 x G 3″
	Female-to-Male Union Coupler for Gasket Sealing	4370G	from 1/4″ x G 1/2″ to 2 1/2″ x G 3″
	Male Union Coupler for Gasket Sealing	4371G	from 1/4″ x G 1/2″ to 3″ x G 3 1/2″
	Union Coupler for Gasket Sealing	4372	from 8 x G 3/8″ to 54 x G 2 1/2″
	Union Nut	4374	from G 3/8″ to G 2 1/2″
	Straight Male Union Coupler with Cone Seat	4380	from 8 x G 3/8″ to 76 x G 3″

	Straight Female-to-Male Union Connector with Cone Seat	4380G	from 1/4" x G 1/2" to 2 1/2" x G 3"
	Union Coupler with Cone Seat	4381	from 8 x G 3/8" to 67 x G 3"
	Male Union Coupler with Cone Seat	4382G	from 1/8" x G 3/8" to 3" x G 3 1/2"
	90° Female Elbow with Lugs, 3-Hole Mounting	4471G	from 10 x 3/8" to 28 x 1"
	90° Female Elbow with Lugs, 2-Hole Mounting	4472G	from 12 x 3/8" to 22 x 3/4"
Series 5000			
	90° Single-Socket Bend	5001A	from 6 to 159
	90° Double-Socket Bend	5002A	from 6 to 159

	45° Single-Socket Bend	5040	from 8 to 133
	45° Double-Socket Bend	5041	from 6 to 159
	180° Double-Socket Bend	5060	from 10 to 54
	Double-Socket Bypass Coupler	5085	from 12 to 22
	Single-Socket Bypass Coupler	5086	from 12 to 22
	90° Double-Socket Elbow	5090	from 6 to 108
	90° Double-Socket Reducing Elbow	5090R	from 15 x 12 to 28 x 22
	90° Single-Socket Elbow	5092	from 6 to 54

	Equal Tee	5130	from 6 to 159
	Reducing Tee	5130R	from 6 x 8 x 6 to 159 x 108 x 159
	Reducing Connector	5240	from 8 x 6 to 108 x 89
	Battery Connector with Flange and Gasket	5240G	from 15-1/2 to 22-3/4
	Reducing Nipple Coupler	5243	from 8 x 6 to 159 x 133
	Coupling	5270	from 6 to 159
	Slip Coupling	5270S	from 12 to 54
	Cap	5301	from 6 to 108
	Battery Connector with Gasket	5359G	from 10 x G 3/8” to 22 x G 1”
	Compensation Coupler	5870	from 15 to 42

04 Life cycle assessment (LCA) - general principles

Declared unit

The declared unit is the production of 1 kg of series 3000, 4000, and 5000 fittings.

Allocation

Semi-finished and finished products come to Sady from manufacturing plants in Poznań (Poland), Cordoba (Spain), and four factories in China. Semi-finished products are assembled and packaged at Sady and shipped directly to customers or to storage facilities in Pensnett, from where they are distributed further to customers. Inputs were inventoried for each production (Poland, Spain, China) and storage facility (Poland, Spain, UK). The allocation of impacts is based on the weight of brass and bronze products, which is a percentage of total production and transport. All raw material receipts are allocated in module A1. Production is based on bronze ingots, bronze tubes, and copper tubes. Production waste is sold as scrap to external entities where it is recycled. Module A2 includes the transport of raw materials to production sites and the transport of semi-finished products between production and storage facilities. Energy, fuel, and water consumption, as well as waste generation, were inventoried for the entire production process in module A3.

System boundaries

The life cycle analysis of the declared products includes the production stage (modules A1 - A3) and modules A4, C1-C4+D ('cradle to gate with options') according to EN 15804 and ITB PCR A.

System limits

100% of input materials and 100% of electricity, natural gas, propane, diesel and water consumption were inventoried at the Poznan, Sady, Cordoba, Pensnett and four factories in China. All relevant parameters from the collected production data are included in the assessment, i.e. all materials consumed for production, packaging materials and media used, waste produced and emissions generated.

Modules A1 and A2 Extraction and transport of raw materials

Raw materials and semi-finished products for production, such as bronze ingots, bronze tubes, copper tubes, brass, phosphorus, and zinc, are transported to the production facilities (Poland, Spain, China) from Asia and Europe. Module A1 shows the production impact of raw materials further used in the production of fittings. Raw material transport data is recorded by the plants. Means of transport include trucks, ships and trains. Global fuel averages were used for the calculation of module A2.

Module A3 Production

The production process is illustrated in the diagram on pages 23–24.

The 3000 and 4000 series fittings are manufactured from castings or rods/tubes. After delivery of the raw materials, mechanical processing takes place. The connectors are then washed and inspected, after which they are packaged and shipped to Sady.

For series 5000 fittings: after the delivery of raw materials, metal forming or mechanical processing is carried out. The products are then washed, followed by quality control, packaging, and shipment to Sady or directly to customers.

Module A4 Transport

Transport of products to the customer is carried out from three locations: Pensnett in the UK, Sady in Poland and Cordoba in Spain. Finished products are packed in bags and cartons. The company uses road transport, adapted to the size of the order. The largest order recipients are in Germany, Romania, France, Switzerland, Poland and Finland. The fuel used is diesel. The average transport distance is 1005 km.

Module C1 Deconstruction and demolition

No information on the impact of deconstruction in the construction or any other sector is available for copper and bronze fittings. Therefore, no contribution to the impact categories of this module is reported and the module is equal to 0.

Module C2 Transport

A scenario was assumed in which, after the end of their life cycle, the materials - depending on their type - are sent either to a landfill located 50 km from the demolition site, to a recycling facility 250 km away, or to a waste-to-energy recovery plant 150 km away. Transport is carried out by 16-32 ton EURO 5 trucks.

Module C3 Waste treatment

It was assumed that 95% of the products would be recovered and recycled.

Module C4 Disposal

It was assumed that after the end of the use phase, 5% of the products would be sent to landfill.

Module D External impacts beyond system boundaries

Module D presents the burdens and benefits resulting from recycling or reuse. The benefits are assessed at the point of functional equivalence, i.e. where there is a substitution of virgin raw material. The calculations were based on the amount of secondary raw material in the semi-finished products used in production, as well as on the end-of-life scenarios in Module C3.

Data collection period

The input data of the declared products concern the period from January to December 2023. The life cycle assessment has been prepared for the whole world as a reference area.

Data quality

The data for the LCA calculation of modules A1-A4 came from verified LCI inventory data from the plant. In accordance with Annex E of EN 15804 + A2, a data quality assessment was carried out. For technical representativeness, processes with a quality level of 'very good' represent 99% of the values for the climate change indicators. For geographical and temporal representativeness, a process evaluation level of "very good" was obtained.

Assumptions and estimates

The impacts of the representative products were aggregated using a weighted average. The results obtained for the representative products can be applied proportionally to all connectors in the 3000, 4000, and 5000 series.

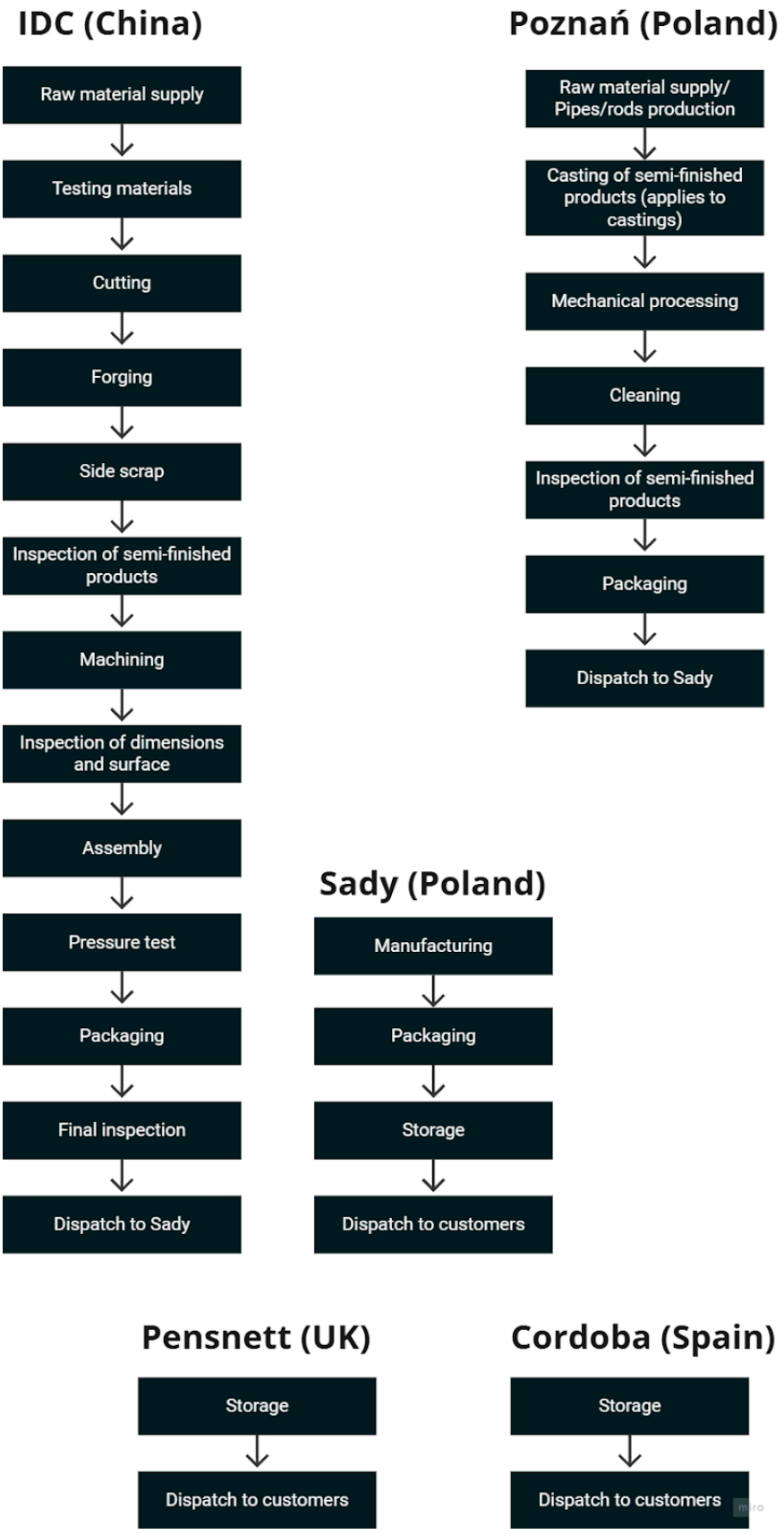
Calculation principles

LCA was made in accordance with EN 15804+A2 standard and ITB PCR A (v1.6. 2023) document.

Databases

The data for the calculations came from Ecoinvent v3.10 and from databases available in Bionova OneClickLCA software. Emission factors for electricity in Poland have been supplemented with actual KOBIZE data. The characterisation factors are JRC EF 3.1 based on EN 15804+A2.

Production scheme - Series 3000 and 4000

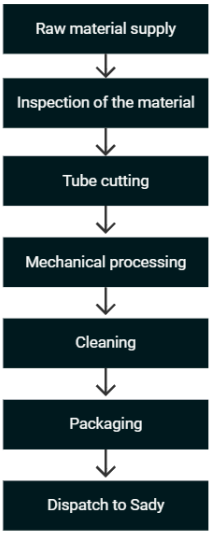


Production scheme - Series 5000

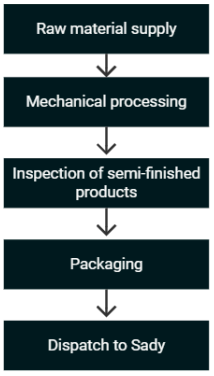
Poznań (Poland)

Cordoba (Spain)

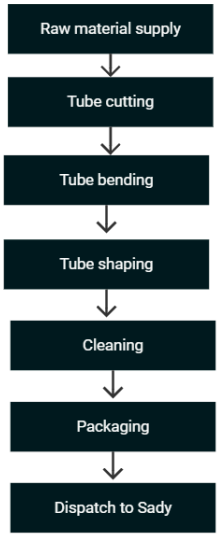
Taizhou (China)



Linhai (China)



Ningbo (China)



Sady (Polska)

Pensnett (UK)

05 Life cycle assessment (LCA) - Results

The declared unit is 1 kg of copper and bronze fittings from series 3000, 4000, and 5000 manufactured by IBP Instalfittings Sp. z o.o. The following indicates which LCA assessment modules were included in the assessment (**MA** - module assessed, **MNA** - module not assessed).

Information on system boundaries																
Product stage			Construction stage		Use stage							End of life				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction and installation process	Use	Maintenance	Repair	Replacement	Refurbishmentt	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal	Potential for reuse, recovery or recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MA	MA	MA	MA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MA	MA	MA	MA	MA

Connectors Series 3000 and 4000

Environmental impacts

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GLOBAL WARMING POTENTIAL - TOTAL	kg CO2 eq.	7,52E+00	1,07E-01	6,81E-01	8,31E+00	1,13E-01	0,00E+00	4,69E-02	2,63E-02	5,56E-04	-3,54E+00
GLOBAL WARMING POTENTIAL - FOSSIL	kg CO2 eq.	7,51E+00	1,07E-01	6,80E-01	8,30E+00	1,12E-01	0,00E+00	4,69E-02	2,63E-02	5,56E-04	-3,53E+00
GLOBAL WARMING POTENTIAL - BIOGENIC	kg CO2 eq.	0,00E+00	0,00E+00	9,89E-05	9,89E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GLOBAL WARMING POTENTIAL - LULUC	kg CO2 eq.	1,40E-02	4,85E-05	1,63E-03	1,57E-02	5,03E-05	0,00E+00	2,08E-05	3,04E-05	1,81E-07	-7,69E-03
DEPLETION POTENTIAL OF THE STRATOSPHERIC OZONE LAYER	kg CFC 11 eq.	6,63E-08	1,58E-09	2,37E-08	9,16E-08	1,66E-09	0,00E+00	6,55E-10	2,78E-10	9,13E-12	-3,36E-08
ACIDIFICATION POTENTIAL	mol H+ eq.	5,61E-01	4,99E-04	3,90E-03	5,65E-01	3,84E-04	0,00E+00	1,56E-04	2,76E-04	2,25E-06	-2,49E-01
EUTROPHICATION AQUATIC FRESHWATER	kg Pe	4,50E-02	8,11E-06	1,24E-04	4,51E-02	8,76E-06	0,00E+00	3,64E-06	1,40E-05	2,65E-08	-1,99E-02
EUTROPHICATION AQUATIC MARINE	kg N eq.	2,87E-02	1,52E-04	7,69E-04	2,96E-02	1,26E-04	0,00E+00	5,06E-05	6,14E-05	1,01E-06	-1,31E-02
EUTROPHICATION AQUATIC TERRESTRIAL	kg N eq.	4,01E-01	1,66E-03	5,33E-03	4,08E-01	1,37E-03	0,00E+00	5,51E-04	6,92E-04	9,38E-06	-1,80E-01
FORMULATION POTENTIAL OF TROPOSPHERIC OZONE	kg NMVOC eq.	1,12E-01	6,26E-04	1,63E-03	1,14E-01	5,65E-04	0,00E+00	2,18E-04	2,04E-04	3,35E-06	-5,05E-02
ABIOTIC DEPLETION POTENTIAL FOR NON-FOSSIL RESOURCES	kg Sb eq.	8,59E-03	2,90E-07	8,06E-07	8,59E-03	3,14E-07	0,00E+00	1,54E-07	1,52E-06	5,14E-10	-3,45E-03
ABIOTIC DEPLETION POTENTIAL FOR FOSSIL RESOURCES	MJ	9,21E+01	1,54E+00	8,61E+00	1,02E+02	1,63E+00	0,00E+00	6,57E-01	3,05E-01	7,71E-03	-4,47E+01
WATER USE	m^3	6,12E+00	7,49E-03	7,54E+00	1,37E+01	8,06E-03	0,00E+00	3,05E-03	4,85E-03	3,46E-05	-3,18E+00

Environmental aspects related to resource use

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
RENEWABLE PRIMARY ENERGY AS AN ENERGY CARRIER	MJ	2,53E+01	2,08E-02	-5,83E-01	2,47E+01	2,24E-02	0,00E+00	9,02E-03	4,73E-02	7,59E-05	-1,19E+01
RENEWABLE PRIMARY ENERGY FOR MATERIAL USE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
COMPLETELY RENEWABLE PRIMARY ENERGY	MJ	2,53E+01	2,08E-02	-5,83E-01	2,47E+01	2,24E-02	0,00E+00	9,02E-03	4,73E-02	7,59E-05	-1,19E+01
NON-RENEWABLE PRIMARY ENERGY AS AN ENERGY SOURCE	MJ	9,21E+01	1,54E+00	8,23E+00	1,02E+02	1,63E+00	0,00E+00	6,57E-01	3,01E-01	2,94E-03	-4,47E+01
NON-RENEWABLE PRIMARY ENERGY AS MATERIA USE	MJ	7,93E-03	0,00E+00	0,00E+00	7,93E-03	0,00E+00	0,00E+00	0,00E+00	-5,94E-03	-1,98E-03	0,00E+00
COMPLETELY NON-RENEWABLE PRIMARY ENERGY	MJ	9,21E+01	1,54E+00	8,23E+00	1,02E+02	1,63E+00	0,00E+00	6,57E-01	2,95E-01	9,63E-04	-4,47E+01
USE OF SECONDARY RAW MATERIALS	kg	3,47E-01	6,61E-04	3,55E-02	3,83E-01	6,95E-04	0,00E+00	2,95E-04	3,53E-04	1,97E-06	-1,59E-01
RENEWABLE SECONDARY FUELS	MJ	3,78E-03	8,07E-06	3,92E-03	7,71E-03	8,83E-06	0,00E+00	3,76E-06	1,60E-05	4,11E-08	-8,96E-04
NON-RENEWABLE SECONDARY FUELS	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
USE OF FRESH WATER RESOURCES	m^3	2,14E-01	2,23E-04	6,27E-03	2,20E-01	2,41E-04	0,00E+00	8,71E-05	1,34E-04	7,92E-06	-1,06E-01

Other environmental information describing the waste categories

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
HAZARDOUS WASTE DESTINED FOR LANDFILL	kg	2,64E+00	2,59E-03	1,05E-02	2,65E+00	2,77E-03	0,00E+00	1,15E-03	2,39E-03	1,36E-05	-1,18E+00
NON-HAZARDOUS WASTE DESTINED FOR DISPOSAL	kg	1,80E+02	4,76E-02	6,54E+00	1,87E+02	5,12E-02	0,00E+00	2,15E-02	6,70E-02	6,50E-04	-7,52E+01
RADIOACTIVE WASTE FOR DISPOSAL	kg	1,97E-04	3,23E-07	6,92E-06	2,04E-04	3,48E-07	0,00E+00	1,30E-07	2,69E-07	1,20E-09	-1,10E-04
COMPONENTS TO BE REUSED	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MATERIALS TO BE RECYCLED	kg	0,00E+00	0,00E+00	1,50E-01	1,50E-01	0,00E+00	0,00E+00	0,00E+00	9,50E-01	0,00E+00	0,00E+00
MATERIALS DESTINED FOR ENERGY RECOVERY	kg	0,00E+00	0,00E+00	5,84E-21	5,84E-21	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EXPORTED ENERGY	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,50E-03	0,00E+00	0,00E+00
EXPORTED ENERGY - ELECTRICITY	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,30E-04	0,00E+00	0,00E+00
EXPORTED ENERGY - HEAT	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,70E-04	0,00E+00	0,00E+00

Connectors Series 5000

Environmental impacts

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GLOBAL WARMING POTENTIAL - TOTAL	kg CO2 eq.	5,38E-01	1,27E-01	2,77E+00	3,43E+00	1,76E-01	0,00E+00	4,69E-02	2,58E-02	3,12E-04	-4,14E-01
GLOBAL WARMING POTENTIAL - FOSSIL	kg CO2 eq.	5,37E-01	1,27E-01	2,76E+00	3,42E+00	1,76E-01	0,00E+00	4,69E-02	2,58E-02	3,12E-04	-4,13E-01
GLOBAL WARMING POTENTIAL - BIOGENIC	kg CO2 eq.	0,00E+00	0,00E+00	1,35E-05	1,35E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GLOBAL WARMING POTENTIAL - LULUC	kg CO2 eq.	1,49E-03	5,75E-05	8,90E-03	1,04E-02	7,89E-05	0,00E+00	2,08E-05	3,04E-05	1,78E-07	-5,87E-04
DEPLETION POTENTIAL OF THE STRATOSPHERIC OZONE LAYER	kg CFC 11 eq.	3,04E-08	1,87E-09	1,59E-07	1,92E-07	2,60E-09	0,00E+00	6,55E-10	2,78E-10	9,04E-12	-3,51E-09
ACIDIFICATION POTENTIAL	mol H+ eq.	3,09E-02	6,21E-04	1,24E-02	4,39E-02	6,01E-04	0,00E+00	1,56E-04	2,76E-04	2,21E-06	-1,01E-02
EUTROPHICATION AQUATIC FRESHWATER	kg Pe	1,21E-03	9,55E-06	5,33E-04	1,75E-03	1,37E-05	0,00E+00	3,65E-06	1,40E-05	2,57E-08	-7,13E-03
EUTROPHICATION AQUATIC MARINE	kg N eq.	1,61E-03	1,87E-04	3,23E-03	5,03E-03	1,98E-04	0,00E+00	5,06E-05	6,14E-05	8,44E-07	-2,93E-03
EUTROPHICATION AQUATIC TERRESTRIAL	kg N eq.	2,27E-02	2,05E-03	3,15E-02	5,63E-02	2,15E-03	0,00E+00	5,51E-04	6,92E-04	9,21E-06	-4,26E-02
FORMULATION POTENTIAL OF TROPOSPHERIC OZONE	kg NMVOC eq.	6,36E-03	7,61E-04	1,22E-02	1,93E-02	8,86E-04	0,00E+00	2,18E-04	2,04E-04	3,30E-06	-8,35E-03
ABIOTIC DEPLETION POTENTIAL FOR NON-FOSSIL RESOURCES	kg Sb eq.	6,52E-04	3,41E-07	1,56E-05	6,68E-04	4,92E-07	0,00E+00	1,54E-07	1,52E-06	4,96E-10	-1,31E-04
ABIOTIC DEPLETION POTENTIAL FOR FOSSIL RESOURCES	MJ	2,07E+01	1,83E+00	6,20E+01	8,45E+01	2,56E+00	0,00E+00	6,58E-01	3,05E-01	7,66E-03	-4,68E+00
WATER USE	m^3	1,85E+00	8,83E-03	2,34E+00	4,20E+00	1,26E-02	0,00E+00	3,05E-03	4,82E-03	2,21E-05	-1,79E-01

Environmental aspects related to resource use

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
RENEWABLE PRIMARY ENERGY AS AN ENERGY CARRIER	MJ	7,02E+00	2,45E-02	7,26E+00	1,43E+01	3,51E-02	0,00E+00	9,02E-03	4,74E-02	7,39E-05	-1,93E+00
RENEWABLE PRIMARY ENERGY FOR MATERIAL USE	MJ	8,13E+00	0,00E+00	-8,13E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
COMPLETELY RENEWABLE PRIMARY ENERGY	MJ	1,52E+01	2,45E-02	-8,69E-01	1,44E+01	3,51E-02	0,00E+00	9,02E-03	4,74E-02	7,39E-05	-1,93E+00
NON-RENEWABLE PRIMARY ENERGY AS AN ENERGY SOURCE	MJ	2,35E+01	1,83E+00	4,84E+01	7,37E+01	2,56E+00	0,00E+00	6,58E-01	3,05E-01	7,66E-03	-4,68E+00
NON-RENEWABLE PRIMARY ENERGY AS MATERIA USE	MJ	5,97E-02	0,00E+00	-5,97E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
COMPLETELY NON-RENEWABLE PRIMARY ENERGY	MJ	2,35E+01	1,83E+00	4,84E+01	7,37E+01	2,56E+00	0,00E+00	6,58E-01	3,05E-01	7,66E-03	-4,68E+00
USE OF SECONDARY RAW MATERIALS	kg	9,46E-01	7,82E-04	1,94E-01	1,14E+00	1,09E-03	0,00E+00	2,95E-04	3,53E-04	1,93E-06	-1,06E-02
RENEWABLE SECONDARY FUELS	MJ	2,33E-04	9,49E-06	5,46E-02	5,48E-02	1,38E-05	0,00E+00	3,76E-06	1,60E-05	3,99E-08	-2,09E-04
NON-RENEWABLE SECONDARY FUELS	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
USE OF FRESH WATER RESOURCES	m^3	5,78E-02	2,63E-04	3,18E-02	8,98E-02	3,78E-04	0,00E+00	8,71E-05	1,33E-04	7,97E-06	-4,60E-03

Other environmental information describing the waste categories

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
HAZARDOUS WASTE DESTINED FOR LANDFILL	kg	1,58E-01	3,06E-03	1,13E-01	2,74E-01	4,33E-03	0,00E+00	1,15E-03	2,38E-03	8,46E-06	-9,37E-02
NON-HAZARDOUS WASTE DESTINED FOR DISPOSAL	kg	1,03E+01	5,61E-02	1,13E+01	2,17E+01	8,02E-02	0,00E+00	2,15E-02	6,69E-02	1,93E-04	-1,03E+00
RADIOACTIVE WASTE FOR DISPOSAL	kg	8,01E-05	3,80E-07	2,55E-04	3,36E-04	5,46E-07	0,00E+00	1,30E-07	2,69E-07	1,17E-09	-6,83E-06
COMPONENTS TO BE REUSED	kg	2,48E-01	0,00E+00	0,00E+00	2,48E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MATERIALS TO BE RECYCLED	kg	8,67E-03	0,00E+00	1,50E-01	1,59E-01	0,00E+00	0,00E+00	0,00E+00	9,50E-01	0,00E+00	0,00E+00
MATERIALS DESTINED FOR ENERGY RECOVERY	kg	2,63E-03	0,00E+00	1,58E-23	2,63E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EXPORTED ENERGY	MJ	6,83E-03	0,00E+00	0,00E+00	6,83E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EXPORTED ENERGY - ELECTRICITY	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EXPORTED ENERGY - HEAT	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Interpretation of the results of the LCA analysis

3000 and 4000 series bronze fittings

The following life cycle phases are responsible for the largest CO2 emissions:

- A1 Raw material supply - 91%
- A3 Manufacturing - 8%
- A2 Transport of raw materials to the production site - 1%

5000 series copper fittings

The following life cycle phases are responsible for the largest CO2 emissions:

- A3 Manufacturing - 81%
- A1 Raw material supply - 16%
- A2 Transport of raw materials to the production site - 4%

The end-of-life scenario assuming complete recycling of copper and bronze products results in a reduced carbon footprint for the products covered by this declaration, thereby minimising the environmental impact.

06 Verification

The verification process for this EPD is in accordance with ISO 14025 and ISO 21930. Once verified, this EPD is valid for a period of 5 years. There is no need to recalculate after 5 years if the inputs have not changed significantly.

EN 15804 standard serves as the basis for ITB PCR-A
independent verification according to ISO 14025 (subsection 8.1.3.)
[ ] internal [x] external

External verification of EPD: **Michał Piasecki, Professor ITB, m.piasecki@itb.pl**
Input data verification, LCI audyt, LCA: **Zuzanna Gondek, JWA, z.gondek@jw-a.pl**
LCA verification: **Michał Piasecki, Professor ITB, m.piasecki@itb.pl**

Note 1: The declaration owner has the sole ownership. liability. and responsibility for the information provided and contained in EPD. Declarations of construction products may not be comparable if they do not comply with EN 15804+A2. For further information about comparability. see EN 15804+A2 and ISO 14025.

Note 2: ITB is a public Research Organization and Notified Body (EC Reg. no 1488) to the European Commission and to other Member States of the European Union designated for the tasks concerning the assessment of building products' performance. ITB acts as the independent. third-party verification organization (ISO 17025/17065/17029). ITB-EPD program is a recognized and registered member of The European Platform - Association of EPD program operators and ITB-EPD declarations are registered and stored in the international ECO-PORTAL.

Normative references

ITB PCR A General Product Category Rules for Construction Products

ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services

ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines

EN 15804 +A2 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

EN 1254-1 Copper and copper alloys — Plumbing fittings — Part 1: Fittings for capillary soldering with soft or hard solder of copper tubes

EN 1254-4 Copper and copper alloys - Plumbing fittings - Part 4: Threaded fittings

EN 1254-5 Copper and copper alloys — Plumbing fittings — Part 5: Fitting with short ends for capillary brazing of copper tubes

EN 10226-1 Pipe threads where pressure tight joints are made on the threads - Taper external threads and parallel internal threads. Dimensions, tolerances and designation

EN 228-1 Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation

EN 1982 Copper and copper alloys - Ingots and castings

EN 12449 Copper and copper alloys - Seamless, round tubes for general purposes

EN 1057+A1 Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications

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CERTIFICATE № 883/2025
of TYPE III ENVIRONMENTAL DECLARATION

Products:
Fittings for threaded and soldered connections - series 3000, 4000, 5000

Manufacturer:
IBP Instalfittings Sp. z o.o.
Stanisława Zwierzchowskiego 29, 61-249 Poznań, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

EN 15804+A2

Sustainability of construction works.
Environmental product declarations.
Core rules for the product category of construction products.

This certificate, issued on 17th December 2025 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics and Environment Department
Agnieszka Winkler-Skalna, PhD

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director for Research and Innovation
Krzysztof Kuczyński, PhD

Warsaw, December 2025