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Environmental Product Declaration Type III (EPD) ITB number 515/2023

>B<Press series P4000, P5000 and P XL press fittings

>B<Press series PG4000 and PG5000 Gas press fittings

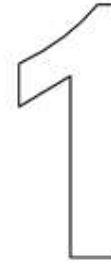
>B<Press series PH4000 and PH5000 Solar press fittings

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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).

LCA analysis: A1 - A3, A4, C1 - C4 i D according to EN 15804 (cradle to grave with options)

Year of EPD development: 2023

Product standards: EN 1254-7, ISO 228, EN 10226, EN 1057, EN 12735-1, EN 12735-2

Declared product lifetime: 25 years

PCR: document ITB-PCR A (based on PN-EN 15804)

Declared unit: 1 kg of product

Reason for implementation: B2B

Representativeness: Polish products, 2021

Manufacturer

Conex Bänninger is a leading innovator and manufacturer of high quality fittings used in copper, carbon steel, plastic and stainless steel pipes.

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The comprehensive offer of the company consists of: fittings and valves for plumbing systems designed for domestic, commercial and industrial applications. The company cooperates with customers from the plumbing, HVAC, refrigeration and medical sectors.

All products covered by this study are manufactured at the following production plants: IBP Instal fittings production plant in Stanisława Zwierzchowskiego 29 Street in Poznań (Poland), IBP Instal fittings production plant in Za Motelem 2A Street in Sady/Tarnowo Podgórne (Poland), IBP ATCOSA, Poligono Industrial, Quintos-Aeropuerto production plant in Cordoba (Spain), Conex Universal Limited, Global House 95 Vantage Point, Pensnett Trading Estate production plant in Kingswinford (United Kingdom).





IBP Instal fittings production plant in Stanisława Zwierzchowskiego 29 Street in Poznań (Poland).



IBP Instal fittings production plant in Za Motelem 2A Street in Sady/Tarnowo Podgórne (Poland).



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

Description of products and application



>B<Press press fittings are made of copper and copper alloys. They ensure a secure and durable connection suitable for numerous applications, such as: drinking water systems, water heating systems, district heating systems, solar thermal systems, water cooling systems and rainwater systems. The >B<Press press fittings do not require soldering - they are designed with an innovative 3-point press system to ensure a leak-free, secure and permanent joint. The fittings with dimensions from 64 to 108 mm additionally have a stainless steel clamping ring which strengthens the connection even more effectively.

The >B<Press fittings (sizes 12 to 54mm) have a 'leak before press' leak indicator which indicates unpressed connections at test pressures from 0.1 to 6.0 bar.

The >B<Press fittings (sizes 64 to 108mm) have a sticker indicating whether the connector is pressed - once pressed, the installer must peel the sticker off the connection.

Any unpressed joints can be easily identified during a test run and pressed, saving valuable time and money. There is no need to drain the water, as the pressing operation can be carried out while water is in the system. The >B<Press fittings are assembled using a press tool with press jaws. The size of the jaws is adapted to the connector diameters. During pressing, the jaw closes to form a permanent connection. In addition, the connectors are characterized by quick and easy assembly.

The >B<Press fittings consist, inter alia, of: bends, connectors, couplers, crossovers, elbows, ends and tees. They are available in many different sizes - from 12 to 108 mm.

>B<Press series P4000, P5000 and P XL press fittings

>B<Press series P4000, P5000 and P XL products are press fittings made of copper (series P4000) or bronze (series P5000, P XL). They are designed for making connections on copper pipes, complying with EN 1057, in water supply and water heating installations. The diameter of the press fittings varies from 12 mm to 108 mm.

The >B<Press fittings are available with male and female threads according to the following standards:

- connection threads in accordance with EN 10226-1 (ISO 7-1),
- clamping threads in accordance to ISO 228 - cylindrical.

The press fittings are sealed with a black o-ring made of EPDM material. The O-ring has a PI (Press Indicator) function to indicate "leakage before pressing". The above-mentioned O-ring has two constrictions which make it possible to detect leaks (during the pressure test) at low pressure (0.1 to 6.0 bar) in the absence of pressing. This indicator applies to fittings with diameters of 12 - 54 mm.

Fittings with diameters from 64 to 108mm have a sticker indicating whether the fitting is pressed - once pressed, the installer must peel the sticker off the joint.

The connection is made by press-fitting with B-profile jaws (diameter up to 54 mm) or V-profile jaws (diameter from 64 to 108 mm).

The advantage of >B<Press fittings is the 3-point pressing (one on each side of the notch and one pressing on the notch with an O-ring) which ensures a permanent and secure connection. The press fittings are assembled using a press tool with press jaws. The size of

the jaws is matched to the diameter of the fittings. During pressing, the jaw closes to form a permanent connection.

>B<Press Gas series P4000 and P5000 press fittings

>B<Press Gas series PG4000 and PG5000 products are press fittings made of copper (series PG5000) or bronze (series PG4000). They are designed for making connections on copper pipes, complying with EN 1057, in gas and gaseous fuel installations. The diameter of the connectors varies from 12 mm to 54 mm.

The >B<Press Gas fittings are available with male and female threads according to the following standards:

- connection threads in accordance to EN 10226-1 (ISO 7-1),
- clamping threads in accordance to ISO 228 - cylindrical.

The press fittings are sealed with a yellow O-ring made of HNBR material. The O-ring has a PI (Press Indicator) function to indicate "leakage before pressing". The above-mentioned O-ring has two constrictions which, if not pressed, allow the detection of leaks.

The connection is made by pressing with B-profile jaws.

The advantage of >B<Press fittings is the 3-point pressing (one on each side of the notch and one pressing on the notch with an O-ring) which ensures a permanent and secure connection. The press fittings are assembled using a press tool with press jaws. The size of the jaws is matched to the diameter of the fittings. During pressing, the jaw closes to form a permanent connection.

>B<Press Solar series P4000 and P5000 press fittings

>B<Press Solar series PH4000 and PH5000 products are press fittings made of copper (series PH5000) or bronze (series PH4000). They are designed for making connections on copper pipes, complying with EN 1057, in water supply systems, water heating systems and solar thermal systems. The diameter of the connectors varies from 12 mm to 54 mm.

The >B<Press fittings are available with male and female threads according to the following standards:












- connection threads in accordance to EN 10226-1 (ISO 7-1),
- clamping threads in accordance to ISO 228 - cylindrical.







The press fittings are sealed with a green O-ring made of FKM material. The O-ring has a PI (Press Indicator) function to indicate "leakage before pressing". The above-mentioned O-ring has two constrictions which, if not pressed, allow the detection of leaks.

The connection is made by pressing with B-profile jaws.

The advantage of >B<Press fittings is the 3-point pressing (one on each side of the notch and one pressing on the notch with an O-ring) which ensures a permanent and secure connection. The press fittings are assembled using a press tool with press jaws. The size of the jaws is matched to the diameter of the fittings. During pressing, the jaw closes to form a permanent connection.












Overview of >B<Press series P4000 press fittings - bronze elements

Photo	Type	Code	Dimensions
	90° Bend with Male Thread	P4001G	12x3/8", 12x1/2", 15x3/8", 15x1/2", 18x1/2", 18x3/4", 22x3/4", 28x1", 35x1 1/4", 42x1 1/2", 54x2"
	90° Elbow with Female Thread	P4090G	12x3/8", 12x1/2", 15x3/8", 15x1/2", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 22x1", 28x1", 35x1 1/2", 42x1 1/2", 54x2"
	Wall Plate Elbow Tank Connector	P4093G	15x1/2x3/4x25, 15x1/2x3/4x35
	Female Bent Union	P4096G	12x1/2", 15x1/2", 18x1/2", 18x3/4", 22x3/4", 22x1", 28x1", 35x1 1/4", 42x1 1/2", 54x2"
	Tee with Female Threaded Branch	P4130G	12x1/2"x12, 15x3/8"x15, 15x1/2"x15 18x1/2"x18, 22x1/2"x22, 22x3/4"x22 28x1/2"x28, 28x3/4"x28, 35x1/2"x35, 42x1/2"x42, 54x1/2"x54,
	Male branch Tee	P4132G	15x1/2"x15, 18x3/4"x18, 22x3/4"x22, 28x3/4"x28, 35x3/4"x35, 42x3/4"x42, 54x1"x54, 54x1 1/4"x54
	Male Straight Connector	P4243G	12x3/8", 12x1/2", 15x3/8", 15x1/2", 15x3/4", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 22x1", 28x3/4", 28x1", 28x1 1/4", 35x1", 35x1 1/4", 35x1 1/2", 42x1 1/4", 42x1 1/2", 54x1 1/2", 54x2"
	Straight Tank Connector	P4244G	15x1/2x3/4x30
	Female Straight Connector	P4270G	12x3/8", 12x1/2", 15x3/8", 15x1/2", 15x3/4", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 22x1", 28x3/4", 28x1", 28x1 1/4", 35x1", 35x1 1/4", 42x1 1/4", 42x1 1/2", 54x2"
	Slip Coupler Long	P4275	12, 15, 18, 22, 28, 35, 42, 54,
	Male Adaptor	P4280G	12x1/2", 15x1/2", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 28x1", 35x1 1/4", 42x1 1/2", 54x2"

	Female Adaptor	P4281G	12x1/2", 15x1/2", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 28x3/4", 28x1", 35x1", 35x1 1/4", 42x1 1/2", 54x2"
	Union	P4330	12, 15, 18, 22, 28, 35, 42, 54
	Female Straight Union Connector	P4330G	12x1/2", 15x1/2", 15x3/4", 18x1/2", 18x3/4", 22x3/4", 22x1", 28x1", 35x1 1/4", 42x1 1/2", 54x2"
	Male Straight Union Connector	P4331G	12x3/8", 12x1/2", 15x1/2", 15x3/4", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 22x1", 28x1", 35x1 1/4", 42x1 1/2", 54x2"
	Flat Face Connector	P4355	12x3/8", 12x1/2", 14x3/8", 14x1/2", 15x1/2", 15x3/4", 16x1/2", 16x3/4", 18x3/4", 22x3/4", 22x1", 28x1 1/4", 35x1 1/2", 42x1 3/4", 54x2 3/8"
	Wall Plate Elbow	P4471G	12x1/2", 15x1/2", 18x1/2", 22x3/4"









Overview of >B<Press series P5000 press fittings - copper elements

Photo	Type	Code	Dimensions
	90° Street Bend	P5001	12, 14, 15, 16, 18, 22, 28, 35, 42, 54
	90° Bend	P5002	12, 14, 15, 16, 18, 22, 28, 35, 42, 54
	90° Bend Long	P5002L	15, 18, 22, 28
	45° Obtuse Street Elbow	P5040	12, 14, 15, 16, 18, 22, 28, 35, 42, 54
	45° Obtuse Elbow	P5041	12, 14, 15, 16, 18, 22, 28, 35, 42, 54

	Return Bend	P5060	22
	Crossover Coupler	P5085	15, 18, 22
	45° Crossover Street Coupler	P5086	12, 15, 18, 22
	Tee - Equal	P5130	12x12x12, 14x14x14, 15x15x15, 16x16x16, 18x18x18, 22x22x22, 28x28x28, 35x35x35, 42x42x42, 54x54x54
	Tee - Reduced Branch	P5130	14x12x14, 15x12x15, 16x12x16, 16x14x16, 18x12x18, 18x14x18, 18x15x18, 18x16x18, 22x12x22, 22x14x22, 22x15x22, 22x16x22, 22x18x22, 28x15x28, 28x18x28, 28x22x28, 35x15x35, 35x18x35, 35x22x35, 35x28x35, 42x22x42, 42x28x42, 42x35x42, 54x22x54, 54x28x54, 54x35x54, 54x42x54
	Tee - Reduced End and Branch	P5130	14x12x12, 15x12x12, 16x14,14, 18x15x15, 22x15x15, 22x15x18, 22x18x15, 22x18x18, 28x15x22, 28x18x22, 28x22x22, 35x22x28, 38x28x28, 42x35x35, 54x42x42
	Tee - Reduced End	P5130	16x16x14, 18x18x15, 22x22x15, 22x22x18, 28x28x15, 28x28x18, 28x28x22
	Tee - Reduced Both Ends	P5130	12x15x12, 14x16x14, 15x18x15, 15x22x15, 18x22x18, 22x28x22
	Reduced Straight Coupler	P5240	14x12, 15x12, 16x14, 18x14, 18x15, 18x16, 22x14, 22x15, 22x16, 22x18, 28x22, 35x28, 42x35, 54x42
	Fitting Reducer	P5243	14x12, 15x12, 16x12, 16x14, 18x12, 18x14, 18x15, 22x14, 22x15, 22x16, 22x18, 28x15, 28x16, 28x18, 28x22, 35x22, 35x28, 42x22, 42x28, 42x35, 54x35, 54x42
	Straight Coupler	P5270	12, 14, 15, 16, 18, 22, 28, 35, 42, 54
	Slip Coupler	P5270S	12, 14, 15, 16, 18, 22, 28, 35, 42, 54





	Male Stop End	P5290	12, 15, 18, 22, 28, 35, 42, 54
	Stop End	P5301	12, 15, 18, 22, 28, 35, 42, 54

Overview of >B<Press series P XL press fittings - copper elements

Photo	Type	Code	Dimensions
	90° Street Bend	P5001	64, 66.7, 76.1, 88.9, 108
	90° Bend	P5002	64, 66.7, 76.1, 88.9, 108
	45° Obtuse Street Elbow	P5040	64, 66.7, 76.1, 88.9, 108
	45° Obtuse Elbow	P5041	64, 66.7, 76.1, 88.9, 108
	Tee - Equal	P5130	64, 66.7, 76.1, 88.9, 108
	Tee with Female Threaded Branch	P5130G	64x3/4"x64, 64x1"x64, 64x2"x64, 66.7x3/4"x66.7, 66.7x2"x66.7, 76.1x3/4"x76.1, 76.1x2"x76.1, 88.9x3/4"x88.9, 88.9x2"x88.9, 108x3/4"x108, 108x2"x108
	Tee - Reduced Branch	P5130	64x35x64, 64x42x64, 64x54x64, 66.7x28x66.7, 66.7x35x66.7, 66.7x42x66.7, 66.7x54x66.7, 76.1x28x76.1, 76.1x35x76.1, 76.1x42x76.1, 76.1x54x76.1, 76.1x64x76.1, 76.1x66.7x76.1, 88.9x54x88.9, 88.9x64x88.9, 88.9x76.1x88.9, 108x54x108, 108x64x108, 108x76.1x108, 108x88.9x108
	PN16 Flange	P5230B	64, 66.7, 76.1, 88.9, 108







	Fitting Reducer	P5243	64x35, 64x42, 64x54, 67x28, 67x35, 67x42, 67x54, 76x28, 76x35, 76x42, 76x54, 76x64, 76x67, 89x54, 89x64, 89x76, 108x54, 108x64, 108x76, 108x89
	Male Threaded Straight Connector	P5243G	64x2 1/2", 67x2 1/2", 76x2 1/2", 76x3", 89x3", 108x4"
	Straight Connector	P5270	64, 66.7, 76.1, 88.9, 108
	Threaded Female Straight Connector	P5270G	64x2 1/2", 67x2 1/2", 76x2 1/2", 76x3", 89x3", 108x4"
	Repair Coupling	P5275	64, 66.7, 76.1, 88.9, 108
	Stop End	P5301	64, 66.7, 76.1, 88.9, 108

Overview of >B<Press Solar series PH4000 press fittings - bronze elements



Photo	Type	Code	Dimensions
	Tee with Female Threaded Branch	PH4130G	15x1/2"x15, 18x1/2"x18, 22x1/2"x22
	Straight Male Connector	PH4243G	15x1/2", 15x3/4", 18x3/4", 22x3/4", 28x1"
	Straight Female Connector	PH4270G	15x3/4", 18x3/4", 22x3/4", 22x1"
	Female Straight Union Connector	PH4330G	22x3/4"

	Flat Face Connector	PH4355	15x3/4", 18x3/4", 22x1"
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Overview of >B<Press Solar series PH5000 press fittings - copper elements

Photo	Type	Code	Dimensions
	90° Street Bend	PH5001	15, 18, 22, 28
	90° Bend	PH5002	15, 18, 22, 28
	45° Obtuse Street Elbow	PG5040	15, 18, 22, 28
	45° Obtuse Elbow	PH5041	15, 18, 22, 28
	Tee - Equal	PH5130	15, 18, 22, 28
	Stop End	PH5270	15, 18, 22, 28





Overview of >B<Press Gas series PG4000 press fittings - bronze elements

Photo	Type	Code	Dimensions
	90° Bend with Male Thread	PG4001	15x1/2", 18x1/2", 18x3/4", 22x3/4", 28x1", 35x1 1/4", 42x1 1/2", 54x2"
	90° Elbow with Female Thread	PG4090	15x1/2", 15x3/4", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 22x1", 28x1", 35x1 1/4", 42x1 1/2", 54x2"

	Tee with Female Threaded Branch	PG4130G	15x1/2"x15, 18x1/2"x18, 22x1/2"x22, 22x3/4"x22, 28x1/2"x28, 28x3/4"x28, 35x1/2"x35, 42x1/2"x42, 54x1/2"x54
	Straight Male Connector	PG4243	15x1/2", 15x3/4", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 22x1", 28x3/4", 28x1", 28x1 1/4", 35x1", 35x1 1/4", 35x1 1/2", 42x1 1/4", 42x1 1/2", 54x1 1/2", 54x2"
	Straight Female Connector	PG4270G	15x1/2", 15x3/4", 18x1/2", 18x3/4", 22x1/2", 22x3/4", 22x1", 28x1", 35x1 1/4", 42x1 1/2", 54x2"
	Slip Coupler	PG4275	15, 18, 22, 28, 35, 42, 54
	Wall Plate Elbow	PG4471G	15x1/2", 18x1/2", 22x3/4"

Overview of >B<Press Gas series PG5000 press fittings - copper elements

Photo	Type	Code	Dimensions
	90° Street Bend	PG5001	15, 18, 22, 28, 35, 42, 54
	90° Street Bend Long	PG5002	15, 18, 22, 28, 35, 42, 54
	45° Street Obtuse Elbow	PG5040	15, 18, 22, 28, 35, 42, 54
	45° Obtuse Elbow	PG5041	15, 18, 22, 28, 35, 42, 54
	Tee - Equal	PG5130	15, 18, 22, 28, 35, 42, 54

	Tee - Reduced Branch	PG5130	18x15x18, 22x15x15, 22x15x22, 22x18x22, 22x22x15, 28x15x28, 28x22x28, 35x22x35, 35x28x35, 42x28x42, 42x35x42, 54x42x54
	Fitting Reducer	PG5243	18x15, 22x15, 22x18, 28x15, 28x18, 28x22, 35x22, 35x28, 42x22, 42x28, 42x35, 54x35, 54x42
	Straight Coupler	PG5270	15, 18, 22, 28, 35, 42, 54
	Stop End	PG5301	15, 18, 22, 28, 35, 42, 54

Life cycle assessment (LCA) - general principles



Declared unit

The declared unit of product is 1 kg of >B<Press fittings of the series: P4000, PG4000, PH4000, P5000, PG5000, PH5000 and P XL, representative for the wide range of products in these groups. The figures shown are representative for the bronze and copper fittings that account for the majority of production.

Allocation

The allocation in this study was made in accordance with the ITB PCR A guidelines. The plant in Poznań produces semi-finished and finished products, from where they are sent to the plant in Sady. Similarly, production takes place at the plant in Cordoba from where semi-finished products are sent to the plant in Sady or finished products directly to the customer. At the plant in Sady take place assembly and packaging of semi-finished products and dispatch to customers. At the Pensnett plant, storage and dispatch to the customer take place. The input data was collected for each production site. The allocation of impacts is based on the weight of >B<Press products which is a percentage of total production and transport, it accounts for: 34.91% at the Poznań plant, 48.14% at the Sady plant, 35.07% at the Pensnett plant and 33.99% at the Cordoba plant. Allocation to a single, representative product was made on the basis of product weight. All proceeds from raw material extraction are allocated in module A1. Production is based on alloys such as copper, brass and steel, and waste from production goes into processing (chips, pieces are sold as scrap to others). Module A2 includes the transport of raw materials, semi-finished and finished products between the production plants Poznań - Sady, Cordoba - Sady. Energy, fuel and waste deliveries for the whole production process were inventoried 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 ("from cradle to grave with options") according to EN 15804 and ITB PCR A.

System limits

A minimum of 99% of input materials and 100% of energy, water, gas and propane consumption were inventoried at the Poznań, Sady, Cordoba and Pensnett sites. All relevant parameters from the collected production data are included in the assessment, i.e. all materials used in production (including recycled raw materials), direct production waste, fuels used, electricity and gas.

Substances with a percentage of less than 1% of the total mass were excluded from the calculation. It was assumed that the total sum of the omitted processes did not exceed 0.5% of the total impact categories. All packaging products were excluded from the analysis.

Modules A1 and A2 Extraction and transport of raw materials

Raw materials for production, such as bronze ingots, bronze rods, bronze pipes, copper pipes, o-rings, components and packaging materials such as labels, pouches and cartons, are transported from various European countries: Poland, Czech Republic, Germany, Spain, Italy, UK, Latvia, Finland and the Netherlands, and Asian countries: China, Vietnam, Hong Kong. Module A1 shows the impact of the production of the raw materials (mainly brass, bronze pipes and rods and copper pipes) further used in the production of fittings. Raw material transport data is recorded by the plants. Means of transport include trucks and ships. Global fuel averages were used for the calculation of module A2.

Module A3 Production

The production process is illustrated in the diagrams on pages 19 and 20. Once the raw materials have been delivered, processing takes place, accompanied by a by-product such as cutting. The by-product is reused and re-melted into pipes, rods, castings or sold to steel mills as feedstock. Electricity, gas, water and propane are consumed in the process. Semi-finished, finished products from Poznań and Cordoba go to Sady from where they are shipped to customers, or to Pensnett where they are stored and also sold to customers.

The table below shows the composition of the different types of press fittings >B<press series P4000, PG4000, PH4000, P5000, PG500, PH5000 and P XL. Bronze fittings account for 35% of the total production and copper fittings for 65%.

Percentage composition of >B<Press products:

Raw materials	Material details	Bronze fittings	Copper fittings	Fitting sets - screws	Adapters	Copper fittings with a diameter greater than 54 mm
		P4000/ PG4000/ PH4000	P5000/ PG5000/ PH5000	P4330/P4330G/P 4331G/ PH4330	P4355 / PG4355/ PH4355	P XL
Body - Bronze	CC499-DW	98,50%	-	75,50%	50%	-
Body - Copper	CW024A	-	98%	-	-	87%
Stop end - Brass	CW617N	-	-	23,00%	47%	-
Seal	AFM / C-4400	-	-	0,50%	1%	-
Steel ring/ Grip	1.4310 / 1.4301	-	-	0,50%	1%	12%
O-ring	EPDM / HNBR / FKM	1,50%	2%	0,50%	1%	1%

Module A4 Transport

Transport of finished products to the customer is carried out from three locations: Pensnett in the UK, Sady in Poland and Cordoba in Spain. The finished products are packed in plastic bags and placed in cartons on pallets. The company uses customer-supplied wheeled transport adapted to the size of the order. The largest recipients of orders are in Western Europe (UK, France, Germany, Belgium). Road transport is used for deliveries. The fuels used depend on the chosen means of transport but are mainly diesel. The average kilometers for the 10 largest transports from each site over a 12-month period are summarized below:

Transport from the plant in Pensnett		
Country	Address	Distance [km]
United Kingdom	BALLYMENA	579
United Kingdom	TRENTHAM	68
United Kingdom	HOUNSLOW	203
United Kingdom	GLASGOW	467
United Kingdom	MIDDLESEX	2
United Kingdom	ROMFORD	237
United Kingdom	STIRLING	488
United Kingdom	BELFAST	531
United Kingdom	BRISTOL	145
United Kingdom	MANCHESTER	137
Average:		299

Transport from the plant in Sady		
Country	Address	Distance [km]
Germany	RANGSDORF	252
Germany	DUISBURG	785
Germany	STUHR	635
Belgium	ASSE	1000
Germany	WALLENHORST	676
Germany	OSNABRÜCK	655
Germany	GÜTERSLOH	645
Germany	GRAMMETAL	525
Germany	DRENSTEINFURT	696
Germany	MERZIG	1000
Average:		642

Transport from the plant in Cordoba		
Country	Address	Distance [km]
France	CREIL	1720
France	MARSAC SUR L'ISLE	1200
France	STRASBOURG	1980
France	REVENTIN-VAUGRIS	1450
France	PUSIGNAN	1500
France	CHAPONNAY	1480
France	CHENOVE	1680
France	SAINT-LÔ	1685
France	NIORT	1260
France	LA FERRIERE	1680
Average:		1573

Module C1 Deconstruction and demolition

No information on the impact of deconstruction in the construction or any other sector is available for the >B<Press fittings. Therefore, no contribution to the impact categories of this module has been reported and the module is equal to 0.

Module C2 Transport

It is assumed that the end-of-life product will be transported by truck to the nearest waste treatment facility (truck, diesel) within 100 km.

Module C3 Waste treatment

It was assumed that electricity (0.02 kWh/kg) is consumed during the scrapping operation.

Module C4 Disposal

At the end of life the product is sent to scrap and from there for recycling (sale to smelters for remelting). A 98% recovery rate is assumed, with the remaining 2% of the product going to landfill.

Module D External impacts beyond system boundaries

To obtain a net post-consumer scrap result from the product system, the contribution of post-consumer scrap present in the product being assessed is subtracted from the post-consumer scrap to be recycled at the end of life. Module D shows the burdens and benefits of recycling this net residual scrap. Benefits are assessed at the point of

functional equivalence, i.e. where there is a substitution of virgin raw material.

Data collection period

The input data of the declared products concern the period from January to December 2021. The life cycle assessment has been prepared for Poland as a reference area.

Data quality

The data for the LCA calculation of modules A1-A4 came from verified LCI inventory data from each 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 >B<Press fittings of the series: P4000, PG4000, PH4000, P5000, PG5000, PH5000 and P XL.

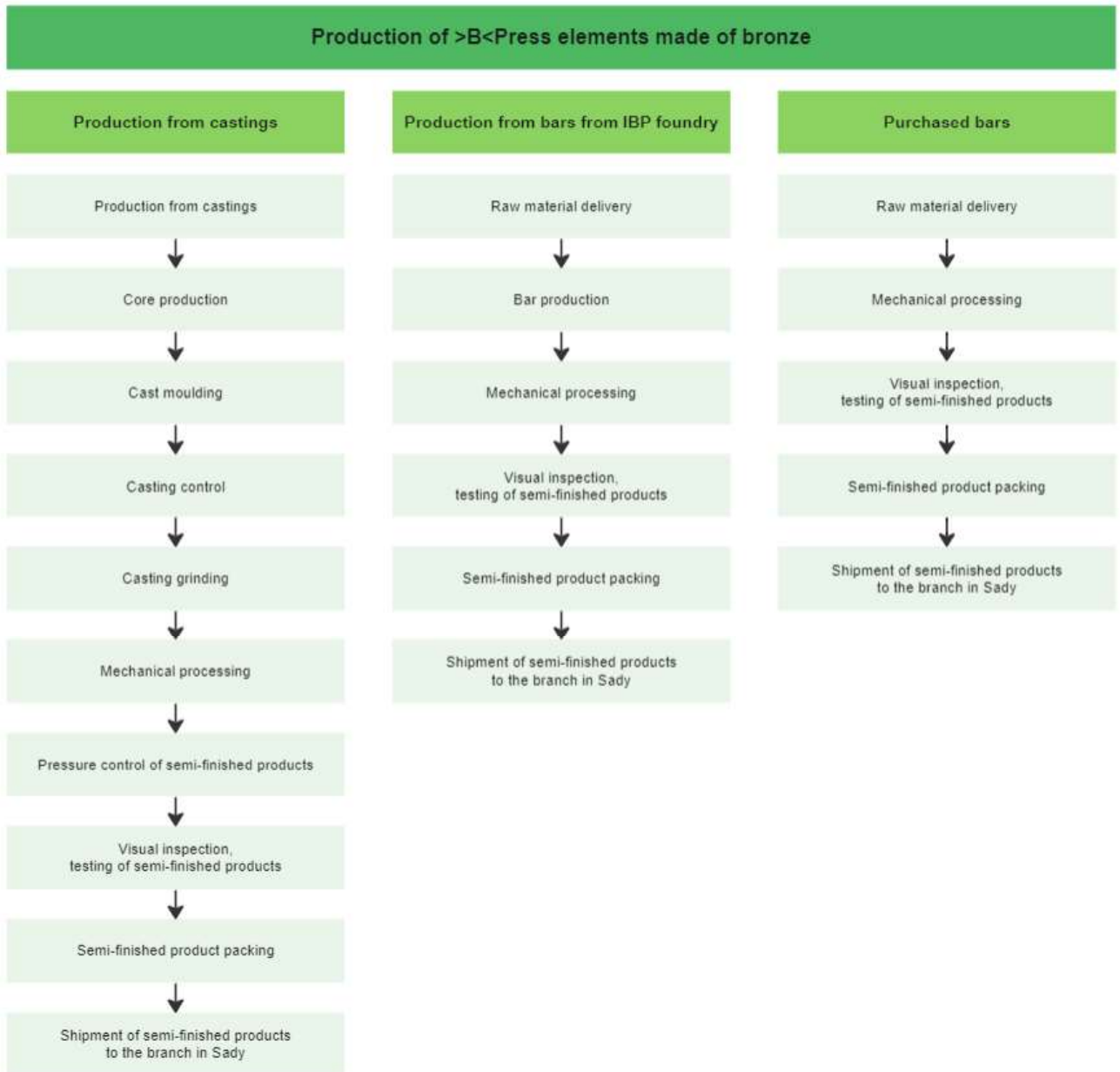
Calculation principles

The LCA was performed in accordance with the PN-EN 15805 standard and the ITB PCR A document.

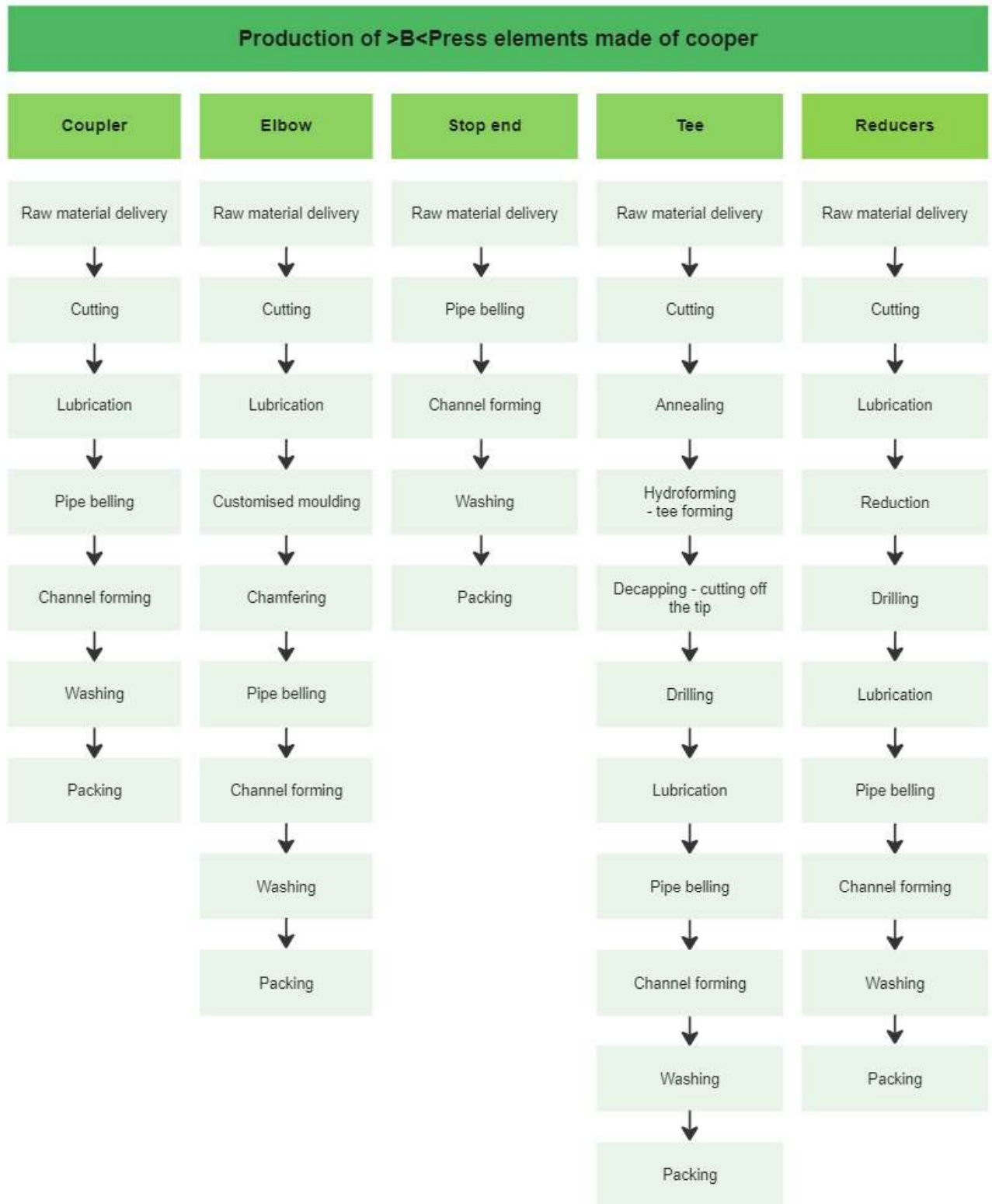
Databases

The data for the calculations came from Ecoinvent v. 3.6, Ecoinvent v. 3.8 and from databases available in Bionova's OneClickLCA software. The characterisation factors are CML ver. 4.2 based on EN 15804+A2.

Production scheme of >B<Press fittings made of bronze:



Production scheme of >B<Press fittings made of copper:



Life cycle assessment (LCA) - results



Declared unit

The declared unit is 1 kg of >B< Press press fittings made of bronze or copper manufactured by IBP Instalittings Sp. z o.o..

The following indicates which LCA assessment modules were included in the assessment:

Information on system boundaries (MA = module assessed, MNA = module not assessed)																
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	Refurbishment	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

As the raw materials in the production stage provide the main contribution to the environmental balance results, there is a linear relationship between the weight of the raw materials and the environmental impact. For further results for other dimensions and types of >B<Press series P4000, PG4000, PH4000, P5000, PG5000, PH5000 and P XL press fittings, please use the following formula:

$$P(x) = [P(x1)/x1]*x$$

P(x): indicator for new declared product,

P(x1): the indicator obtained for the product representing the product type, (e.g. global warming potential (GWP))

x: mass of the new declared product

x1: weight of the product representing the product type

Results for >B<Press series P4000, PG4000 and PH4000 press fittings (made of bronze)

Environmental impacts

Wskaźnik	Jednostka	A1	A2	A3	A4	C1	C2	C3	C4	D
Global warming potential- total	kg CO2 eq.	3,41E+00	1,275E-1	1,36E+00	3,758E-1	0,00E+00	9,097E-3	3,113E-2	8,358E-3	-3,38E0
Global warming potential- fossil	kg CO2 eq.	3,409E+00	1,275E-1	1,29E+00	3,757E-1	0,00E+00	9,088E-3	1,992E-2	8,355E-3	-3,356E0
Global warming potential- biogenic	kg CO2 eq.	0,00E+00	1,173E-5	6,517E-2	0,00E+00	0,00E+00	6,6E-6	1,119E-2	6,874E-7	-1,612E-2
Global warming potential- LULAC	kg CO2 eq.	4,565E-3	3,875E-5	1,84E-4	1,405E-4	0,00E+00	2,735E-6	2,199E-5	1,398E-6	-7,575E-3
Depletion potential of the stratospheric ozone layer	kg CFC 11 eq.	2,178E-7	5,253E-8	7,129E-8	8,217E-8	0,00E+00	2,137E-9	8,859E-10	1,044E-10	-1,969E-7
Acidification potential	mol H+ eq.	3,254E-1	6,633E-4	1,05E-2	1,923E-3	0,00E+00	3,817E-5	1,298E-4	6,95E-5	-2,376E-1
Eutrophication aquatic freshwater	kg Pe	2,459E-3	1,111E-6	5,336E-5	3,699E-6	0,00E+00	7,393E-8	1,268E-6	8,503E-9	-1,051E-3
Eutrophication aquatic marine	kg N eq.	1,593E-2	1,659E-4	1,517E-3	6,417E-4	0,00E+00	1,15E-5	4,495E-5	4,05E-5	-1,181E-2
Eutrophication terrestrial	kg N eq.	2,38E-1	1,832E-3	1,817E-2	7,072E-3	0,00E+00	1,27E-4	3,671E-4	3,917E-4	-1,689E-1
Formation potential of tropospheric ozone	kg NMVOC eq.	6,321E-2	6,121E-4	4,659E-3	2,013E-3	0,00E+00	4,085E-5	1,188E-4	9,723E-5	-4,641E-2
Abiotic depletion potential for non-fossil resources	kg Sb eq.	3,31E-3	1,991E-6	6,795E-6	9,954E-6	0,00E+00	1,551E-7	9,812E-7	1,991E-9	-5,886E-3
Abiotic depletion potential for fossil resources	MJ	3,86E+01	3,36E+00	1,98E+01	5,58E+00	0,00E+00	1,414E-1	1,593E-1	8,509E-3	-4,172E1
Water use	m ³	5,55E+00	6,916E-3	8,135E-1	2,143E-2	0,00E+00	5,259E-4	3,739E-3	1,964E-4	-3,086E0

Environmental aspects related to resource use

Indicator	Unit	A1	A2	A3	A4	C1	C2	C3	C4	D
Renewable primary energy as an energy carrier	MJ	1,02E+01	2,577E-2	1,16E+01	6,233E-2	0,00E+00	1,779E-3	2,162E-2	2,138E-4	-1,073E1
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
Completely renewable primary energy	MJ	1,02E+01	2,577E-2	1,16E+01	6,233E-2	0,00E+00	1,779E-3	2,162E-2	2,138E-4	-1,073E1
Non-renewable primary energy as an energy source	MJ	3,82E+01	3,36E+00	1,98E+01	5,58E+00	0,00E+00	1,414E-1	1,594E-1	8,517E-3	-4,176E1
Non-renewable primary energy for material use	MJ	3,963E-1	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 non-renewable primary energy	MJ	3,86E+01	3,36E+00	1,98E+01	5,58E+00	0,00E+00	1,414E-1	1,594E-1	8,517E-3	-4,176E1
Use of secondary raw materials	kg	5,969E-1	8,885E-5	3,003E-3	0,00E+00	0,00E+00	0,00E+00	2,863E-4	3,719E-6	-6,817E-1
Renewable secondary fuels	MJ	3,272E-4	0,00E+00	7,958E-6	0,00E+00	0,00E+00	0,00E+00	2,373E-5	4,888E-8	-8,381E-4
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
Use of fresh water resources	m ³	1,284E-1	4,666E-4	1,296E-2	9,638E-4	0,00E+00	2,943E-5	9,144E-5	7,293E-6	-1,02E-1

Other environmental information describing the waste categories

Indicator	Unit	A1	A2	A3	A4	C1	C2	C3	C4	D
Hazardous waste destined for landfill	kg	9,587E-1	2,095E-3	6,84E-2	7,302E-3	0,00E+00	1,374E-4	0,00E+00	6,765E-5	-9,871E-1
Non-hazardous waste destined for disposal	kg	1,69E+02	1,932E-1	3,35E+00	4,065E-1	0,00E+00	1,52E-2	0,00E+00	1,573E-3	-6,793E1
Radioactive waste for disposal	kg	1,138E-4	2,366E-5	9,411E-5	3,69E-5	0,00E+00	9,704E-7	0,00E+00	4,439E-8	-1,558E-4
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
Materials to be recycled	kg	0,00E+00	0,00E+00	9,95E-1	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials destined for energy recovery	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
Electricity exported	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,2E-2	0,00E+00	0,00E+00

Results for >B<Press series P5000, PG5000, PH5000 and P XL press fittings (made of copper)

Environmental impacts

Wskaźnik	Jednostka	A1	A2	A3	A4	C1	C2	C3	C4	D
Global warming potential- total	kg CO2 eq.	3,15E+00	2,412E-1	1,36E+00	3,758E-1	0,00E+00	9,097E-3	3,097E-2	5,572E-3	-2,813E0
Global warming potential- fossil	kg CO2 eq.	3,12E+00	2,41E-1	1,29E+00	3,757E-1	0,00E+00	9,088E-3	1,982E-2	5,57E-3	-2,785E0
Global warming potential- biogenic	kg CO2 eq.	1,599E-2	8,082E-5	6,517E-2	0,00E+00	0,00E+00	6,6E-6	1,113E-2	4,583E-7	-1,595E-2
Global warming potential- LULAC	kg CO2 eq.	1,222E-2	1,015E-4	1,84E-4	1,405E-4	0,00E+00	2,735E-6	2,188E-5	9,319E-7	-1,188E-2
Depletion potential of the stratospheric ozone layer	kg CFC 11 eq.	2,734E-7	7,666E-8	7,129E-8	8,217E-8	0,00E+00	2,137E-9	8,814E-10	6,962E-11	-2,519E-7
Acidification potential	mol H+ eq.	2,232E-1	3,254E-3	1,05E-2	1,923E-3	0,00E+00	3,817E-5	1,292E-4	4,633E-5	-2,213E-1
Eutrophication aquatic freshwater	kg Pe	6,34E-4	1,763E-6	5,336E-5	3,699E-6	0,00E+00	7,393E-8	1,626E-6	5,339E-9	-6,218E-4
Eutrophication aquatic marine	kg N eq.	8,857E-3	8,115E-4	1,517E-3	6,417E-4	0,00E+00	1,15E-5	4,472E-5	2,7E-5	-8,541E-3
Eutrophication terrestrial	kg N eq.	1,155E-1	9,006E-3	1,817E-2	7,072E-3	0,00E+00	1,27E-4	3,652E-4	2,612E-4	-1,119E-1
Formation potential of tropospheric ozone	kg NMVOC eq.	3,609E-2	2,505E-3	4,659E-3	2,013E-3	0,00E+00	4,085E-5	1,182E-4	6,482E-5	-3,493E-2
Abiotic depletion potential for non-fossil resources	kg Sb eq.	6,042E-3	3,209E-6	6,795E-6	9,954E-6	0,00E+00	1,551E-7	6,777E-7	1,327E-9	-6,033E-3
Abiotic depletion potential for fossil resources	MJ	4,858E+01	4,916E+00	1,977E+01	5,58E+00	0,00E+00	1,414E-1	1,585E-1	5,673E-3	-4,443E1
Water use	m³	1,61E+01	1,117E-2	8,135E-1	2,143E-2	0,00E+00	5,259E-4	3,72E-3	1,309E-4	-1,599E1

Environmental aspects related to resource use

Indicator	Unit	A1	A2	A3	A4	C1	C2	C3	C4	D
Renewable primary energy as an energy carrier	MJ	4,74E+01	3,982E-2	1,16E+01	6,233E-2	0,00E+00	1,779E-3	2,151E-2	1,426E-4	-4,657E1
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
Completely renewable primary energy	MJ	4,74E+01	3,982E-2	1,16E+01	6,233E-2	0,00E+00	1,779E-3	2,151E-2	1,426E-4	-4,657E1
Non-renewable primary energy as an energy source	MJ	4,83E+01	4,92E+00	1,98E+01	5,58E+00	0,00E+00	1,414E-1	1,586E-1	5,678E-3	-4,445E1
Non-renewable primary energy for material use	MJ	2,642E-1	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+0	0,00E+0	0,00E+00
Completely non-renewable primary energy	Mj	4,86E+01	4,92E+00	1,98E+01	5,58E+00	0,00E+00	1,414E-1	1,586E-1	5,678E-3	-4,445E1
Use of secondary raw materials	kg	6,553E-2	8,885E-5	3,003E-3	0,00E+00	0,00E+00	0,00E+00	2,848E-4	2,479E-6	-3,076E-2
Renewable secondary fuels	MJ	8,782E-4	0,00E+00	7,958E-6	0,00E+00	0,00E+00	0,00E+00	2,361E-5	3,259E-8	-6,66E-4
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
Use of fresh water resources	m³	3,899E-1	6,824E-4	1,296E-2	9,638E-4	0,00E+00	2,943E-5	9,097E-5	4,862E-6	-3,868E-1

Other environmental information describing the waste categories

Indicator	Unit	A1	A2	A3	A4	C1	C2	C3	C4	D
Hazardous waste destined for landfill	kg	1,52E+00	3,796E-3	6,84E-2	7,302E-3	0,00E+00	1,374E-4	0,00E+00	4,51E-5	-1,22E0
Non-hazardous waste destined for disposal	kg	7,12E+01	2,723E-1	3,35E+00	4,065E-1	0,00E+00	1,52E-2	0,00E+00	1,049E-3	-7,029E1
Radioactive waste for disposal	kg	3,24E-4	3,451E-5	9,411E-5	3,69E-5	0,00E+00	9,704E-7	0,00E+00	2,959E-8	-3,126E-4
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
Materials to be recycled	kg	0,00E+00	0,00E+00	9,95E-1	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials destined for energy recovery	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
Electricity exported	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,2E-2	0,00E+00	0,00E+00

Interpretation of LCA results for >B<Press series P4000, PG4000 and PH4000 press fittings (made of bronze)

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

- A1 Raw material supply - 65,0%
- A3 Manufacturing - 24,7%
- A4 Transport to construction site - 7,2%
- A2 Transport (to facility) - 2,4%

Of the input materials, due to the largest share of the total weight of the final product, the largest contribution CO₂ emissions in the A1-A3 phase are:

- bronze 81,68% of total CO₂ emissions
- brass 16,45% of total CO₂ emissions

Interpretation of LCA results for >B<Press series P5000, PG5000, PH5000 and P XL press fittings (made of copper)

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

- A1 Raw material supply - 61,6%
- A3 Manufacturing - 25,5%
- A4 Transport to construction site - 7,4%
- A2 Transport (to facility) - 4,8%

Of the input materials, due to the largest share of the total weight of the final product, the largest contribution CO₂ emissions in the A1-A3 phase are:

- copper 89,45% of total CO₂ emissions
- steel 9,46% of total CO₂ emissions

An end-of-life scenario with a recovery rate of 98% results in a reduced carbon footprint for the products covered by this declaration, thereby minimizing the environmental impact.

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 serves as the basis for ITB PCR-A Independent verification according to ISO 14025 (subsection 8.1.3.) [] internal [X] external
External verification of EPDs: Michał Piasecki, Professor ITB, m.piasecki@itb.pl Input data verification, LCI audit, LCA: Agnieszka Kaczmarek, JW+A, a.kaczmarek@jw-a.pl LCA verification: Michał Piasecki, ITB professor, m.piasecki@itb.pl

The declaration owner has the sole ownership, liability, and responsibility for the declaration. Declarations within the same product category but from different programmes may not be comparable. Declarations of products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

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 1057 Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications
- EN 12735-1 Copper and copper alloys -- Seamless, round copper tubes for air conditioning and refrigeration -- Part 1: Tubes for piping systems
- EN 12735-2 Copper and copper alloys -- Seamless, round copper tubes for air conditioning and refrigeration -- Part 2: Tubes for instrumentation
- EN 1254-7 Copper and copper alloys -- Plumbing fittings -- Part 7: Press connectors for metallic pipes
- ISO 228-1 Pipe threads for connections with tightness not achieved at the threads
- EN 10226 Pipe threaded for connections with tightness achieved at the threads

Signature valid

Dokument podpisany przez
Michał Piasecki, ITB
Data: 2023.09.11 11:43:54 CEST



Instytut Techniki Budowlanej

00-611 Warsaw, Filtrów 1

Thermal Physics, Acoustics and Environment Department
02-656 Warsaw, Ksawerów 21

CERTIFICATE № 515/2023
of TYPE III ENVIRONMENTAL DECLARATION

Products:

- >B<Press series P4000, P5000 and P XL press fittings,
- >B<Press series PG4000 and PG5000 Gas press fittings,
- >B<Press series PH4000 and PH5000 Solar press fittings

Manufacturer:

IBP Instal fittings Sp. z o.o.

ul. 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 29th August 2023 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics
and Environment Department

Agnieszka Winkler-Skalna
Agnieszka Winkler-Skalna, PhD



Deputy Director
for Research and Innovation

Krzysztof Kućzyński
Krzysztof Kućzyński, PhD

Warsaw, August 2023