Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Technical valve

EPD of multiple products, based on worst-case results
Products included are listed in Appendix 1.

from

Oras Group

Programme:	The International EPD® System, www.environdec.com
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Programme information	
Programme	The International EPD® System
Address	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website	www.environdec.com
E-mail	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification	
Product Category Rules (PCR)	CEN standard EN 15804 serves as the Core Product Category Rules (PCR) Product Category Rules (PCR): Construction products, 2019:14, version 1.3.4, UN CPC 42911 - Sinks, washbasins, baths and other sanitary ware and parts thereof, of iron, steel, copper or aluminium. PCR review was conducted by: The Technical Committee of the International EPD® System. Chair of the PCR review: Claudia A. Peña. The review panel may be contacted via info@environdec.com.
Life Cycle Assessment (LCA)	LCA accountability: Anna Pietilä, Analyst Organization: Ecobio Oy.
Third-party verification	Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Hannu Karppi, Ramboll Finland Oy  Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier:	☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Company information

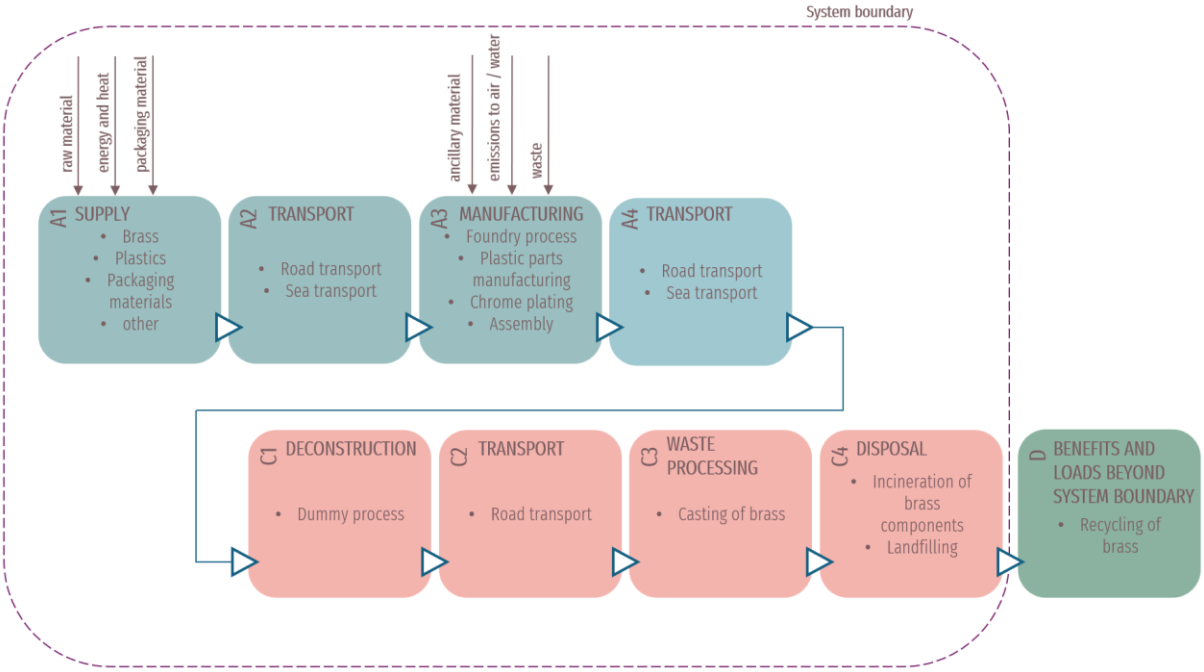
Owner of the EPD	Oras Group
Contact	Phone: +358 2 83 161 Email: info@orasgroup.com www.orasgroup.com
Description of the organisation	Oras Group is a significant European provider of sanitary fittings: the market leader in the Nordics and a leading company in Continental Europe. The company's mission is to create the smartest and most sustainable water experiences for everyone, and its vision is to become the Perfect Flow Company. The Group has two strong brands, Oras and Hansa. Oras Group is owned by Oras Invest, a family company, and an industrial owner. The domicile of Oras Ltd, the parent company of the Group, is located in Rauma, Finland, and the Group has three manufacturing sites: Kralovice (Czech Republic), Olesno (Poland) and Rauma (Finland). The Group operates with its own staff in 15 markets. Oras Group's net sales were 243.9 million euros in 2022 and at the end of the period the company employed 1271 people.
Product-related or management system-related certifications	Designation according to standard EN 215, EN 1488, EN 13828 and EN 1490
Management system related certifications	ISO 9001:2015 ISO14001:2015 ISO 45001: 2018 ISO 50001:2018
Name and location of production sites	Oras Group Olesno production site Ul. Leśna 2, PL 46-300 Olesno, Poland

Product information

Product name	Technical valves
Product group identification	Technical valve with outlet DN10-DN50 according to EN 215, EN 1488, EN 13828 and EN 1490.
Product group description	Oras Group products are manufactured in our European factories by focusing into sustainable energy sources, highly efficient processes and minimized material usage and waste. The threshold value for the share of brass in product declaration is 0-100%.
UN CPC code	42911 - Sinks, washbasins, baths and other sanitary ware and parts thereof, of iron, steel, copper or aluminium
Geographical scope	Europe

LCA information	
Functional unit / declared unit	1 kg of Technical valve
EPD of multiple products	In this EPD, the information and LCA results of three (3) similar products are presented. The products are presented in the Appendix I of this EPD and in the LCA report related to this EPD. Since the declared environmental impact indicator results, aggregated over all included modules A-C, differ by more than 10% between any of the included products, for each indicator, the highest results are declared. I.e., the results of a "worst-case product" are presented.
Reference service life	The reference service life for technical valves is 16 years The technical service life for technical valves is 25 years
Time representativeness	The data was collected covering production year 2020, which is considered to represent average production year for technical valves. Data of electricity sources of electricity consumed in the manufacturing is from 2022. The sales volumes of the reference products are from 2022. The material declarations used as a basis for modelling the raw material supply are compiled in 2024.
Databases and LCA software	Ecoinvent 3.10 and SimaPro (Version 9.6.0.1).
Description of system boundaries	Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules). The additional module is A4.

System diagram



LCA practitioner	Ecobio Oy, www.ecobio.fi
Allocation	The allocation of energy and material flows is determined based on the production volumes of the main products, as well as any co-products and other products manufactured within the same facilities. Co-product allocation was applied for the brass scrap that is produced from the foundry process. Economic co-product allocation was applied based on the hierarchy presented for co-product allocation on the EN 15804:2012+A2:2019.
Electricity used in module A3	The Polish residual electricity mix contains biomass 2,6 %, hydropower 0,98 %, wind 2,9 %, solar 1,5 %, coal 70,8 %, lignite 0,2 %, natural gas 14,7 %, oil 0,12 % and nuclear 4 %. GWP-GHG impact of the used electricity mix is 799 g CO2-eq/kWh *
Cut-off rule	1% cut-off rule was applied for input flows in the inventory. Environmental impacts of infrastructure, facilities (capital goods), transportation of employees required for and during production are excluded along the whole life cycle.

* The information provided regarding electricity production is based on data from a specific collection period described on page 4. As such, it may not reflect the current electricity mix or greenhouse gas impact.

Modules declared

geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Geography	EU27	EU27	EU27	EU27	-	-	-	-	-	-	-	-	EU27	EU27	EU27	EU27	EU27
Specific data used	5 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	< 10 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Only one production site					-	-	-	-	-	-	-	-	-	-	-	-

Modules explained

LCA Modules	
A1 Raw material supply	**C1 De-construction**
This module contains the supply of raw materials including brass, stainless steel, plastics, rubbers and other materials in smaller quantities.	This module is assumed to not cause environmental impacts as the de-construction of technical valves can be done with manual labour and does not require external energy sources.
A2 Transportation	**C2 Transport**
This module contains the transportation of raw materials and prefabricated components from suppliers to Oras Group's production facilities. Average transportation route covering all the relevant raw materials was developed as there is wide range of possible supply locations even for single raw materials and components. Transportation takes place by road and sea.	This module contains the transportation of product for waste processing to nearest waste processing facility. Transportation is done by road and the distance is assumed to be 50 km.
A3 Manufacturing	**C3 Waste processing**
This module contains the relevant production processes for technical valves. The most relevant is casting of brass components as the brass components are precasted by suppliers before arriving to assembly and casting process in foundry. Treatment of waste and wastewater are also included. The used electricity mix for manufacturing stage is stated on chapter "LCA Information". Additionally, some products within the product group are assembled in another European country.	This module contains the waste processing related to material recycling of brass. It is assumed that 90 % of the brass is headed for material recycling process, which includes casting of brass into brass ingots.
A4 Transport	**C4 Disposal**
This module contains the transportation of the final product to warehouses from where further distribution takes place. The scenario does not included transportation to construction site.	This module contains final disposal of materials that are not headed for material or energy recovery. Stainless steel, plastic components, rubber components, packaging materials of the final product and 10 % of brass are assumed to be headed for incineration without energy recovery. Other components in smaller quantities are assumed to be headed to landfill.
	D Benefits and loads beyond system boundary
	This module contains the benefits related to material recycling of brass. Brass is recycled through casting process, and it is assumed to substitute virgin brass production from the market

Content information

The content declaration lists the lowest amounts of recycled and biogenic content in the products and packaging, the most hazardous substances in any of the products, and the average content for all other components.

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% of product	Biogenic material, kg C/declared unit
Acrylonitrile butadiene styrene	0,0043	0 %	0 %	0 %
Brass	0,7452	0 %	0 %	0 %
Ethylene propylene diene monomer	0,0016	0 %	0 %	0 %
Other	0,0877	0 %	0 %	0 %
Polyamide	0,0458	0 %	0 %	0 %
Polybutylene terephthalate	0,0117	0 %	0 %	0 %
Polytetrafluoroethylene	0,0083	0 %	0 %	0 %
Stainless steel	0,0024	0 %	0 %	0 %
Steel	0,0931	0 %	0 %	0 %
TOTAL	**1**	**0 %**	**0 %**	**0 %**
Packaging materials	Weight, kg	Weight-% (versus the product)	Biogenic material, kg C/declared unit	
Paper	0,0040	0 %	0,0045	
PE	0,0113	1 %	0,0000	
Steel	0,0080	1 %	0,0000	
TOTAL	**0,0233**	**3 %**	**0,0262**	

The technical valves do not contain substances which exceed the limits for registration with the European Chemicals Agency regarding the “Candidate List of Substances of Very High Concern for authorization”.

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804 and EF 3.1.

Results per 1 kg of Technical valve											
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq.	$5,9*10^{0}$	$2,8*10^{-1}$	$2,7*10^{0}$	$8,9*10^{0}$	$3,0*10^{-1}$	0	$1,2*10^{-2}$	$8,6*10^{-3}$	$8,4*10^{-3}$	$-2,3*10^{0}$
GWP-biogenic	kg CO2 eq.	$1,1*10^{-2}$	$4,8*10^{-5}$	$1,7*10^{-2}$	$2,8*10^{-2}$	$5,3*10^{-5}$	0	0	$2,2*10^{-6}$	$1,3*10^{-5}$	$-1,1*10^{-1}$
GWP - luluc	kg CO2 eq.	$1,1*10^{-2}$	$1,1*10^{-4}$	$3,5*10^{-4}$	$1,1*10^{-2}$	$1,0*10^{-4}$	0	$3,8*10^{-6}$	$1,4*10^{-6}$	$3,7*10^{-6}$	$-4,4*10^{-3}$
GWP - total	kg CO2 eq.	$5,9*10^{0}$	$2,8*10^{-1}$	$2,7*10^{0}$	$8,9*10^{0}$	$3,0*10^{-1}$	0	$1,2*10^{-2}$	$8,6*10^{-3}$	$8,4*10^{-3}$	$-2,5*10^{0}$
ODP	kg CFC 11 eq.	$3,5*10^{-7}$	$5,2*10^{-9}$	$2,2*10^{-8}$	$3,8*10^{-7}$	$5,8*10^{-9}$	0	$2,4*10^{-10}$	$2,3*10^{-10}$	$1,8*10^{-10}$	$-2,0*10^{-8}$
AP	mol H+ eq.	$3,8*10^{-1}$	$2,5*10^{-3}$	$8,8*10^{-3}$	$4,0*10^{-1}$	$1,2*10^{-3}$	0	$3,6*10^{-5}$	$1,6*10^{-5}$	$4,8*10^{-5}$	$-1,6*10^{-1}$
EP-freshwater	kg P eq.	$1,7*10^{-3}$	$2,0*10^{-6}$	$1,6*10^{-4}$	$1,9*10^{-3}$	$2,3*10^{-6}$	0	$9,0*10^{-8}$	$6,1*10^{-8}$	$1,1*10^{-7}$	$-7,3*10^{-4}$
EP-marine	kg N eq.	$2,0*10^{-2}$	$6,7*10^{-4}$	$2,2*10^{-3}$	$2,2*10^{-2}$	$3,8*10^{-4}$	0	$1,2*10^{-5}$	$4,9*10^{-6}$	$1,9*10^{-5}$	$-8,3*10^{-3}$
EP-terrestrial	mol N eq.	$2,8*10^{-1}$	$7,4*10^{-3}$	$2,6*10^{-2}$	$3,1*10^{-1}$	$4,2*10^{-3}$	0	$1,3*10^{-4}$	$6,0*10^{-5}$	$2,0*10^{-4}$	$-1,2*10^{-1}$
POCP	kg NMVOC eq.	$7,9*10^{-2}$	$2,4*10^{-3}$	$6,7*10^{-3}$	$8,8*10^{-2}$	$1,7*10^{-3}$	0	$5,7*10^{-5}$	$2,3*10^{-5}$	$7,0*10^{-5}$	$-3,3*10^{-2}$
ADP-minerals&metals*	kg Sb eq.	$5,3*10^{-3}$	$7,7*10^{-7}$	$1,2*10^{-6}$	$5,3*10^{-3}$	$9,3*10^{-7}$	0	$3,8*10^{-8}$	$2,6*10^{-8}$	$2,3*10^{-8}$	$-2,3*10^{-3}$
ADP-fossil*	MJ	$7,9*10^{1}$	$3,9*10^{0}$	$3,2*10^{1}$	$1,1*10^{2}$	$4,2*10^{0}$	0	$1,7*10^{-1}$	$1,3*10^{-1}$	$1,4*10^{-1}$	$-3,0*10^{1}$
WDP	m3	$6,7*10^{0}$	$2,0*10^{-2}$	$3,4*10^{-1}$	$7,0*10^{0}$	$2,3*10^{-2}$	0	$9,4*10^{-4}$	$4,6*10^{-3}$	$3,9*10^{-3}$	$-2,8*10^{0}$
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption										

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators, based on EF 3.1.

Results per 1 kg of Technical valve											
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO2 eq.	$6,0*10^{0}$	$2,9*10^{-1}$	$2,7*10^{0}$	$9,0*10^{0}$	$3,0*10^{-1}$	0	$1,2*10^{-2}$	$8,7*10^{-3}$	$8,5*10^{-3}$	$-2,4*10^{0}$

Use of resources

Results per 1 kg of Technical valve											
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	C1	C2	C3	C4	D
PERE	MJ	$1,9*10^{1}$	$5,8*10^{-2}$	$1,5*10^{0}$	$2,0*10^{1}$	$6,9*10^{-2}$	0	$3,2*10^{-3}$	$3,8*10^{-2}$	$2,6*10^{-3}$	$-7,7*10^{0}$
PERM	MJ	$8,1*10^{-4}$	0	0	$8,1*10^{-4}$	0	0	0	0	0	0
PERT	MJ	$1,9*10^{1}$	$5,8*10^{-2}$	$1,5*10^{0}$	$2,0*10^{1}$	$6,9*10^{-2}$	0	$3,2*10^{-3}$	$3,8*10^{-2}$	$2,6*10^{-3}$	$-7,7*10^{0}$
PENRE	MJ	$8,4*10^{1}$	$4,1*10^{0}$	$3,4*10^{1}$	$1,2*10^{2}$	$4,4*10^{0}$	0	$1,8*10^{-1}$	$1,4*10^{-1}$	$1,5*10^{-1}$	$-3,2*10^{1}$
PENRM	MJ.	$1,5*10^{-1}$	0	0	$1,5*10^{-1}$	0	0	0	0	0	0
PENRT	MJ	$8,4*10^{1}$	$4,1*10^{0}$	$3,4*10^{1}$	$1,2*10^{2}$	$4,4*10^{0}$	0	$1,8*10^{-1}$	$1,4*10^{-1}$	$1,5*10^{-1}$	$-3,2*10^{1}$
SM	kg	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0
FW	m3	$1,6*10^{-1}$	$4,8*10^{-4}$	$7,7*10^{-3}$	$1,7*10^{-1}$	$5,6*10^{-4}$	0	$2,3*10^{-5}$	$1,3*10^{-4}$	$9,3*10^{-5}$	$-6,9*10^{-2}$
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water										

[1] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Waste production and output flows

Waste production

Results per 1 kg of Technical valve										
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste disposed	kg	$8,4*10^{-3}$	0	$2,9*10^{-6}$	$8,4*10^{-3}$	0	0	0	0	0	0
Non-hazardous waste disposed	kg	$9,7*10^{-2}$	$1,1*10^{-4}$	$9,6*10^{-3}$	$1,1*10^{-1}$	$4,4*10^{-5}$	0	$1,3*10^{-6}$	$5,2*10^{-6}$	$1,1*10^{-1}$	$-5,0*10^{-3}$
Radioactive waste disposed	kg	$1,4*10^{-5}$	0	$4,0*10^{-7}$	$1,5*10^{-5}$	0	0	0	0	0	0

Output flows

Results per 1 kg of Technical valve										
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	0	0	$4,4*10^{-1}$	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	$2,0*10^{-1}$	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per declared unit		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	0,0000
Biogenic carbon content in packaging	kg C	0,0090

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Differences versus previous versions

This is the first version of the EPD so there are no differences versus previous versions of the EPD.

References

Disaggregated final energy consumption in households – Energy use – Water heating. Eurostat. 2022.
Ecobio LCA report – Bathroom products and technical valves. Oras Group. 2025.
General Programme Instructions of the International EPD® System. Version 5.0.1.
MEErP Preparatory Study on Taps and Showers. European Comission. 2014.
PCR 2019:14. Construction products. Version 1.3.4

EPD®

Included products

413022	Pump valve, DN20, Cu22
413022-Y	Pump valve, DN20, Cu22
413920	Water meter valve, G3/4
410015	Line adjustment valve, DN15
410025	Line adjustment valve, DN25
410020	Line adjustment valve, DN20
410032	Line adjustment valve, DN32
410040	Line adjustment valve, DN40
410215	Line adjustment valve, DN15
410210	Line adjustment valve, DN10
410050	Line adjustment valve, DN50
410225	Line adjustment valve, DN25
410220	Line adjustment valve, DN20
410232	Line adjustment valve, DN32
410010	Line adjustment valve, DN10
410820	Line adjustment valve, DN20
412018	Hot water circulation valve, DN20, Cu18
412012	Hot water circulation valve, DN15, Cu12
416015	Filling valve, DN15
416015-Y	Filling valve, DN15
416020	Filling valve, DN20
416020-Y	Filling valve, DN20
416025	Filling valve, DN25
432940	Water meter valve
413018	Pump valve, DN20, Cu18
413028	Pump valve, DN25, Cu28
413028-Y	Pump valve, DN25, Cu28
413012	Pump valve, DN15, Cu12
413035	Pump valve, DN32, Cu35
413035-Y	Pump valve, DN32, Cu35
411015	Pump adjustment valve, DN15, Cu15
413820	Pump valve, DN20
413850	Pump valve, DN50
413825	Pump valve, DN25
413840	Pump valve, DN40
413054	Pump valve, DN50, Cu54
413054-Y	Pump valve, DN50, Cu54
412015	Hot water circulation valve, DN15, Cu15
414825	Feed valve, DN25
414840	Feed valve, DN40
414850	Feed valve, DN50
432840	Water meter valve, DN40
432932	Water meter valve
432040	Water meter valve, DN32/Du40
432938	Water meter valve, G1 1/4/G3/4
432863	Water meter valve, DN25/DN32
432832	Water meter valve, DN25
432837	Water meter valve, DN25
412022	Hot water circulation valve, DN20, Cu22
413015	Pump valve, DN15, Cu15
413015-Y	Pump valve, DN15, Cu15
413042	Pump valve, DN40, Cu42
414832	Feed valve, DN32
105007	Washing machine valve
414012	Feed valve, DN15
414015	Feed valve, DN15, Cu15
414018	Feed valve, DN20, Cu18
414022	Feed valve, DN20, Cu22
414028	Feed valve, DN25, Cu28
414035	Feed valve, DN32, Cu35
414042	Feed valve, DN40, Cu42
414054	Feed valve, DN50, Cu54
414920	Feed valve, DN20
414925	Feed valve, DN25
414932	Feed valve, DN32
414940	Feed valve, DN40
414950	Feed valve, DN50
430150	Safety valve, DN15, 10bar
430200	Safety valve, DN20, 10bar