

1. Plants currently under construction

Castelleone Extension (Italy)	Start-up	Beginning of 2023
	Type of Waste	Biowaste (FORSU)
	Capacity	Extension from 25.000 to 60.000 tons/year
	Delivery	Turnkey extension of wet pre-treatment step according to BTA® Hydromechanical Pre-treatment and extension of sanitation step, incl. design, supply, electromechanical installation and commissioning
Valorlis Extension (Portugal)	Start-up	2nd half 2022
	Type of Waste	Biowaste
	Capacity	25.000 tons/year
	Delivery	<u>Extension by new biowaste treatment line</u> Process Engineering for new treatment line including wet pre-treatment, anaerobic digestion, dewatering and process water management Support assembly, commissioning and start-up Supply of key components new wet pre-treatment and thickening step for biowaste line <u>Reinforcement existing treatment line for the Organic Fraction Municipal Solid Waste (OFM SW)</u> Process Engineering for reinforcement works of existing pre-treatment line Modification of 2 existing pulpers and supply of new light fraction removal system (LRS Screw)

Essonne (France)	Start-up	End of 2023
	Type of Waste	Biowaste, commercial waste, food waste
	Capacity	35.000 tons/year
	Delivery	Process engineering BTA® Process, construction supervision, planning and support of the commissioning and start-up Supply of key components of BTA® Hydromechanical Pre-treatment, Sanitation and anaerobic digestion step as well as piping SCADA Programming and visualisation. Operation and maintenance support
Gello di Pontedera (Italy)	Start-up	2nd half 2022
	Type of Waste	Biowaste (FORSU)
	Capacity	44.000 tons/year
	Delivery	Process engineering BTA® Process, construction supervision, planning and support of the commissioning and start-up

2. Plants designed according to the BTA® Process

The following plants have been designed according to the overall BTA® Process incl. digestion. BTA provided general engineering services, key components and construction / start-up assistance:

Lohja (Finland)	Start-up	2021
	Type of Waste	Sewage sludge, biowaste, packaged organic commercial waste, food waste, forest industry sludge, grease sludge
	Capacity	60.000 tons/year
Topinoja (Finland)	Start-up	2020
	Type of Waste	Sewage sludge, biowaste, commercial waste
	Capacity	35.000 tons/year

Varennes (Canada)	Start-up	2018
	Type of Waste	Source Separated Organics, commercial waste, grass ciplings, septage
	Capacity	51.000 tons/year
Northern Malta (Malta)	Start-up	2016
	Type of Waste	Municipal Solid Waste, bulky waste, manure and poultry dung
	Capacity	up to 162.000 tons/year
Zell am See (Austria)	Start-up	2013
	Type of Waste	Biowaste, food waste, commercial waste, sewage sludge
	Capacity	18.000 tons/year
Gijón (Spain)	Start-up	2013
	Type of Waste	Biowaste (FORM) and/or sewage sludge
	Capacity	25.000 tons/year
Toronto Disco Road (Canada)	Start-up	2013
	Type of Waste	Biowaste, food waste, commercial waste, sewage sludge
	Capacity	75.000 tons/year
Maresme (Spain)	Start-up	2013
	Type of Waste	Pre-treated Municipal Solid Waste
	Capacity	190.000 tons/year total input; 35.000 tons/year in wet pre-treatment

Toronto Dufferin (Canada)	Start-up	2012
	Type of Waste	Source Separated Organics (SSO)
	Comment	Delivery and installation of one complete additional digester (5.300 m ³) incl. extension of the existing plant control unit (works executed in the frame of an upgrading of the existing Toronto Dufferin Organics Processing Facility).
Bredbury Parkway (UK)	Start-up	2011
	Type of Waste	Municipal Solid Waste
	Capacity	110.000 tons/year total input; 86.000 tons/year in wet pre-treatment
Suldouro (Portugal)	Start-up	2011
	Type of Waste	Municipal Solid Waste
	Capacity	43.000 tons/year total input; 27.000 tons/year in wet pre-treatment
Reliance Street (UK)	Start-up	2010
	Type of Waste	Municipal Solid Waste
	Capacity	100.000 tons/year total input; 63.000 tons/year in wet pre-treatment
Valorlis (Portugal)	Start-up	2010
	Type of Waste	Municipal Solid Waste
	Capacity	50.000 tons/year total input; 30.000 tons/year in wet pre-treatment
Castelleone (Italy)	Start-up	2010
	Type of Waste	Biowaste, commercial waste, maize silage, pig and cow manure
	Capacity	100.000 tons/year total input; 26.000 tons/year in wet pre-treatment

References



Granollers (Spain)	Start-up	2010
	Type of Waste	Biowaste (FORM)
	Capacity	45.000 tons/year
Mülheim (Germany)	Start-up	2003
	Type of Waste	Biowaste, commercial waste
	Capacity	22.000 tons/year
Ieper (Belgium)	Start-up	2003
	Type of Waste	Biowaste, commercial waste
	Capacity	50.000 tons/year
Ko-Sung (Korea)	Start-up	2003
	Type of Waste	Biowaste, commercial waste
	Capacity	3.000 tons/year
Toronto (Canada)	Start-up	2002
	Type of Waste	Biowaste, commercial waste
	Capacity	25.000 tons/year
Villacidro (Italy)	Start-up	2002
	Type of Waste	Municipal Solid Waste incl. sewage sludge
	Capacity	45.000 tons/year
Mertingen (Germany)	Start-up	2001
	Type of Waste	Commercial waste
	Capacity	12.000 tons/year
Newmarket (Canada)	Start-up	2000
	Type of Waste	Biowaste, commercial waste and organic sludge
	Capacity	150.000 tons/year

Wadern-Lockweiler (Germany)	Start-up	1998
	Type of Waste	Biowaste, commercial waste
	Capacity	20.000 tons/year
Kirchstockach (Germany)	Start-up	1997
	Type of Waste	Biowaste
	Capacity	20.000 tons/year
Erkheim (Germany)	Start-up	1997
	Type of Waste	Biowaste, commercial waste
	Capacity	11.500 tons/year
Karlsruhe (Germany)	Start-up	1996
	Type of Waste	Biowaste
	Capacity	8.000 tons/year
Dietrichsdorf (Germany)	Start-up	1995
	Type of Waste	Biowaste, commercial waste, food waste
	Capacity	17.000 tons/year
Helsingør (Denmark)	Start-up	1991
	Type of Waste	Biowaste
	Capacity	20.000 tons/year

3. Plants provided with BTA® Hydromechanical Pre-treatment or parts thereof

For the following plants BTA provided general engineering services, key components and construction/start-up assistance, mainly for the BTA pre-treatment:

Glasgow (Scotland)	Start-up	2017
	Type of Waste	Pre-treated Municipal Solid Waste (< 80 mm)
	Capacity	90.000 tons/year input wet pre-treatment

Burgos (Spain)	Start-up	2011
	Type of Waste	Pre-treated Municipal Solid Waste (< 90 mm)
	Capacity	25.000 tons/year input wet pre-treatment
	Comment	Refurbishment of existing Methanization Plant from Ecoparque Burgos including replacement of existing wet pre-treatment and supply of BTA Control System for the complete methanization line
Itzig (Luxembourg)	Start-up	2011
	Type of Waste	Biowaste, food waste
	Capacity	15.000 tons/year
Leoben (Austria)	Start-up	2009
	Type of Waste	Biowaste, kitchen waste, commercial waste
	Capacity	18.000 tons/year
Barcelona / Ecoparc I (Spain)	Start-up	2009
	Type of Waste	Biowaste, Municipal Solid Waste
	Capacity	245.000 tons/year total input; 50.000 tons/year in wet pre-treatment
	Comment	Refurbishment of existing plant including replacement of existing pre-treatment and gas mixing system in one of the digesters
Komoro (Japan)	Start-up	2005
	Type of Waste	Food waste
	Capacity	8.000 tons/year
Herrieden (Germany)	Start-up	2003
	Type of Waste	Biowaste, commercial waste
	Capacity	13.000 tons/year in wet pre-treatment

Parramatta (Australia)	Start-up	2003
	Type of Waste	Commercial waste, organic sludges
	Capacity	35.000 tons/year
Nara City (Japan)	Start-up	2003
	Type of Waste	Food waste
	Capacity	1.500 tons/year
Verona (Italy)	Start-up	2002
	Type of Waste	Municipal Solid Waste
	Capacity	150.000 tons/year total input; 70.000 tons/year in wet pre-treatment
Pulawy (Poland)	Start-up	2001
	Type of Waste	Municipal Solid Waste
	Capacity	22.000 tons/year in wet pre-treatment
Kushima City (Japan)	Start-up	2001
	Type of Waste	Commercial waste
	Capacity	about 1.000 tons/year
Münster (Germany)	Start-up	1997
	Type of Waste	Biowaste
	Capacity	20.000 tons/year
Wels (Austria)	Start-up	1997
	Type of Waste	Commercial waste, biowaste
	Capacity	15.000 tons/year
Schwabach (Germany)	Start-up	1996
	Type of Waste	Biowaste
	Capacity	12.000 tons/year

Baden-Baden (Germany)	Start-up	1993
	Type of Waste	Biowaste
	Capacity	5.000 tons/year
Kaufbeuren (Germany)	Start-up	1992
	Type of Waste	Biowaste
	Capacity	2.500 tons/year

4. Agricultural Biogas Plants

The following agricultural plants have been designed according to BTA technology. BTA provided general engineering services and key components. The plants marked with *) were built by BTA on a turn-key basis:

Montanera (Italy)	Start-up	2009
	Type of Waste	Slurry, maize silage, cow dung
	Capacity	29.000 tons/year
Chiusa Pesio (Italy)	Start-up	2008
	Type of Waste	Cow manure and energy crops
	Capacity	625 kW
Stockerau* (Austria)	Start-up	2007
	Type of Waste	Maize silage
	Capacity	500 kW
Raab* (Austria)	Start-up	2007
	Type of Waste	Maize silage
	Capacity	500 kW
Seckach* (Germany)	Start-up	2006
	Type of Waste	Maize silage
	Capacity	500 kW

Parndorf* (Austria)	Start-up	2006
	Type of Waste	Maize silage
	Capacity	500 kW
Echsenbach * (Austria)	Start-up	2005
	Type of Waste	Maize silage
	Capacity	500 kW
Karlshof / Stadt München* (Germany)	Start-up	2000
	Type of Waste	Manure and maize silage
	Capacity	130 kW

5. Pilot Plants

Tochigi (Japan)	Start-up	1997 - 1998
	Delivery	Pilot plant
Garching (Germany)	Start-up	1986 - 1995
	Delivery	Construction and operation of pilot plant Garching. Continuous tests and research project to optimize the BTA [®] Process and prove its suitability for the organic fraction of different waste types from municipal, commercial and agricultural sources.