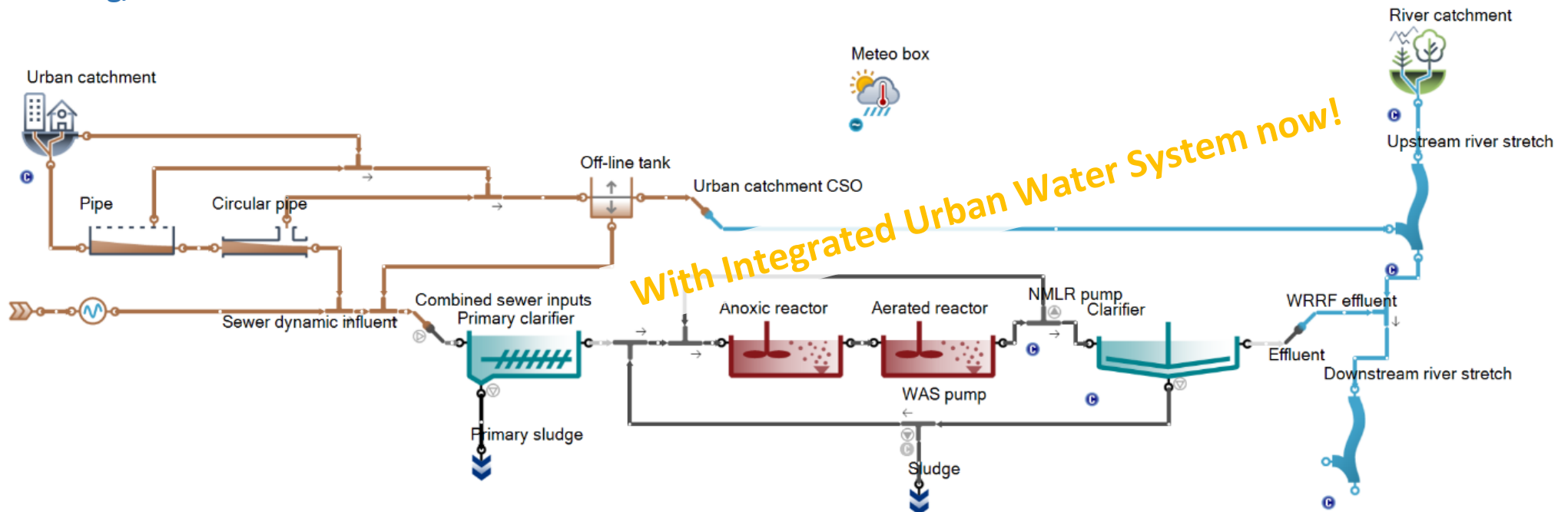


The Sumo[®] full featured Wastewater Process Simulator

Why choose Sumo?

The new **Sumo22¹** is out with significant improvements. Comes with IUWS (urban catchment and river models), scope 1 and 2 Carbon Foot Print, primary effluent input, RO, new pond model, flexible SBR, SVI input, updated industry-leading bio-P and dynamic alpha prediction. Fast Never-To-Fail[®] steady-state solver, easy scenario handling, and a ton of other new features.



- Most extensive *calibrated model library* for traditional and advanced wastewater resource recovery processes, GHG, carbon footprint, integrated urban water system
- *Supported* by the largest² wastewater simulation company round the clock
- Sumo is the only *open process source* commercial simulator² (coded in Excel tabular format in SumoSlang™)

- Virtually *unlimited* activated sludge/anaerobic digester/sidestream treatment *configurations* available³
- Only simulator that allows complete flexibility to *build your own models* or modify any models in Sumo
- Integrated *steady-state and dynamic simulations*, 2-way link to Excel or other programs, popups, sticky notes, undo, Book of SumoSlang, extended documentation. Available soon in Korean, Chinese, Japanese, Spanish, Turkish, German and Vietnamese languages
- *Fast! Very fast!* Ask for more details: www.dynamita.com or info@dynamita.com

Technical specifications

Biokinetic/chemical models	Process units/configurations	Strong points
<p>Sumo models (Dynamita in-house researched/developed)</p> <ul style="list-style-type: none"> • Sludge production and oxygen uptake • One step nitrification/denitrification • Two step nitrification/denitrification, anammox • High-rate process, flocculation • Industry leading Bio-P with PAOs GAOs (for S2EBPR as well) • Fermentation, anaerobic digestion • Sulfur oxidation/reduction/precipitation • Chemical P removal (iron/alum) • Struvite and other precipitates, nutrient recovery • Greenhouse gases • Methanol dosing • Aeration • pH, alkalinity • Gas transfer, stripping • Controllers (DO, SRT, timer, on-off, ratio, PID) • Dynamic alpha prediction • Sludge dewaterability prediction <p>Museum models</p> <ul style="list-style-type: none"> • ASM1 • ASM2d (original or with TUD bio-P) • ASM3 (w/wo bio-P) 	<p>Easy, flexible influent specification</p> <p>Reactors</p> <ul style="list-style-type: none"> • All types of activated sludge reactors (CSTRs, PFRs, oxidation ditches, SBRs etc.) • Fermenters • Anaerobic digesters • Sidestream reactors • MBBR, IFAS, TF, Mobile Carrier • Aerobic Granular Sludge • MABR, MBR • BAF, UASB • Pond/lagoon <p>Phase separators</p> <ul style="list-style-type: none"> • Primary, secondary settlers • Reverse osmosis, Thickeners, centrifuges, cyclone, dewatering, filters etc. <p>Other units</p> <ul style="list-style-type: none"> • Thermal hydrolysis and advanced oxidation processes • DO, MLSS, SRT, pH, ORP control <p>Flow control elements</p> <ul style="list-style-type: none"> • Pumps, bypass weirs, channels, EQ basin • Flow combiners/dividers 	<p>Easiest software to get up to speed with</p> <ul style="list-style-type: none"> • GUI Windows 10, 11 based (compiled models are platform independent) • Runs on Mac within Parallels or Windows • Unique, user-friendly task-flow based software design, undo, Excel report • Mass flow displays/annotation directly on drawing board. Publication ready • Expert support in process software • Training courses, technology transfer • Sumo team co-authored books (WERF Influent Characterization Manual, Good Modelling Practice Guidelines, various MOPs) • Industry standard layered settling model for all types of settlers, clarifiers, thickeners with compression • Open API connection to 3rd party apps Excel toolkit complementing Sumo • Dynamita Influent Tools • Dynamita High F/M Tool (Autotrophic growth rate evaluator) • Dynamita OUR tool • Dynamita Influent Active Biomass Tool

<ul style="list-style-type: none"> • Barker-Dold • ADM1 <p>Other models</p> <ul style="list-style-type: none"> • UCTPHO+ (UCT) <p>Your own models</p> <ul style="list-style-type: none"> • Model editor/automated mass balance check • Dedicated process engineering/research support • SumoSlang – built-in intuitive simulation language for any dynamic or algebraic model <p>Energy, cost and CFP calculation layer on top of process layer</p> <p>Add-ons</p> <ul style="list-style-type: none"> • Carrier movement in PFRs and in plant (e.g., kenaf) • Sewer (including odour) model 	<p>Tools</p> <ul style="list-style-type: none"> • Sum, ratio, totalizers, noise, mapping... <p>Configurations</p> <ul style="list-style-type: none"> • Unlimited complexity (largest, most complex plants in the world have been modelled) • Typical example plants (A2O, MLE, SBRs, AS+Digester, whole plant with sidestream treatment, IUWS, etc.) provided with software • Mainstream deammonification • AB process • Thermal hydrolysis + digestion • and many others 	<ul style="list-style-type: none"> • Dynamita DSRT Tool (Do you know your sludge age?) • Dynamita K_La Tool • Dynamita Pump and Blower Tools <p>Offices</p> <ul style="list-style-type: none"> • Western Europe (France, Austria) • North America (Canada) • Eastern Europe (Hungary) <p>Representatives</p> <ul style="list-style-type: none"> • Korea, Japan, China, Spain, Australia
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PRICING

Single license with controllers 2000 €⁴ pa including support

Volume discounts, educational, research and network licenses are available as annual lease or outright purchase.

Training at your location or in Dynamita offices available.

Ask for a detailed pricelist: info@dynamita.com



¹Sumo19 and Sumo21 remain operational and do not need to be uninstalled

²To our best knowledge

³If we don't have it, we build it. Timeline and development cost (if any) is case specific

⁴We reserve the right to change pricing without notice

Sumo[©] is used worldwide.

Municipalities: DCWater, Washington DC, USA; Hampton Road Sanitation District, Norfolk, USA, Clean Water Services, Portland, USA, City of Meridian, Idaho, USA; City of Boulder, USA; First Utility District of Knox County, USA; Great Lake Water Authority, USA; Trinity River Authority, USA; City of Kunming, China, WaterCare, Auckland; New Zealand, Aurecon, New Zealand;

Consultants: CH2M, USA; AECOM, USA; ARAConsult, Austria; UTB, Hungary; Friedrichbüro, Germany; EnviTreat, USA; Ramboll, Finland; InnoWater, Hungary; Black and Veatch, USA; HDR, USA; Stantec, USA; Brown and Caldwell, USA; RF Wastewater, USA; SUEZ (CESMAE), France; Atkins, USA; Carollo, USA; Hazen and Sawyer, USA; Trojan Technologies, USA; AquaConsult Baltic, USA; InCTRL, Canada; BioPolus, Hungary; Veolia USA/France/Sweden; R.M. Towill, USA; OptVantage, New Zealand; Headworks International, USA, Volkert & Associates, Inc. USA; HKF Technology, USA, SWECO Nederland B.V., The Netherlands; HEPS Co., Korea; Kinnear Engineering, USA; Holinger, Switzerland, BG Ingénieurs Conseils SA, Switzerland; Hunziker Betatech, Switzerland; Jiacheng Environmental Protection&Engineering, China; Kiewit Corporation, China; GMB Civiel, The Netherlands; Olsson, USA; Binnies, UK; Sapoval, France; Çevtaş, Turkey;

Universities: VirginiaTech, University of Michigan, Aalto, INSA University of Colorado, TUD (Delft), EAWAG/ETHZ, Università Degli Studenti Firenze, University of Antwerpen, University of Tartu, Technische Universität Darmstadt, Northeastern University, University of Kansas, INRA, University of Queensland, University of California, Rice University, Universitat de Girona, LIST Luxembourg, University of Washington, Northwestern University, Federal University of Ceara, Lappeenranta University of Technology, BOKU Wien, Harbin Institute of Technology, China; Tshingua University, China; Lunds Universitet, Sweden; Brunel University, UK; Cranfield University, UK; Georgia Institute of Technology, USA;

and others outside these categories such as Transcend Software, USA; CAMBI, Norway; UNESCO, Paris; World Water Works, USA; Tanuki Software, Japan; Kurita Water, Japan;

(partial client list, 2022)