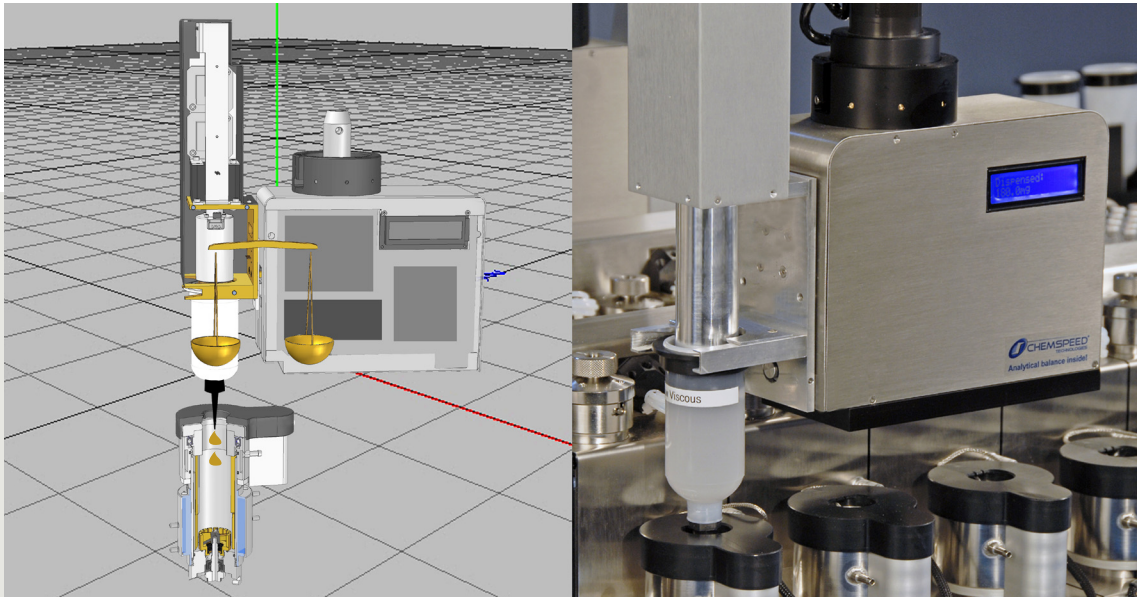


FORMAX[®]

from concepts to success



from concepts to success

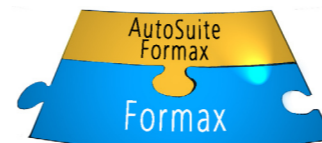
FORMAX, a modular robotic platform enabling quality formulations

Formax is Chemspeed's software-driven robotic platform for challenging formulation workflows in the Paint, Cosmetics, Performance Chemicals and other industries.

- Formax brings paradigm shifting modularity enabling an easy to use workflow task driven software
- exchangeable robotic tools
- unrivaled gravimetric dispensing technology
- high quality, flexible and modular formulation vessels
- a large choice of hardware and software tools allow fine tuned adaptation to your workflow

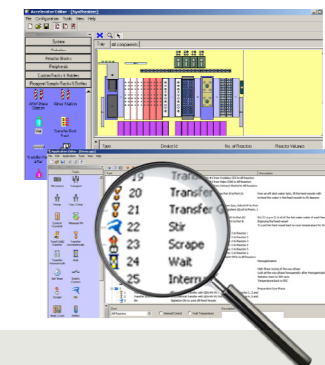


Powered by *AutoSuite Formax* user interface



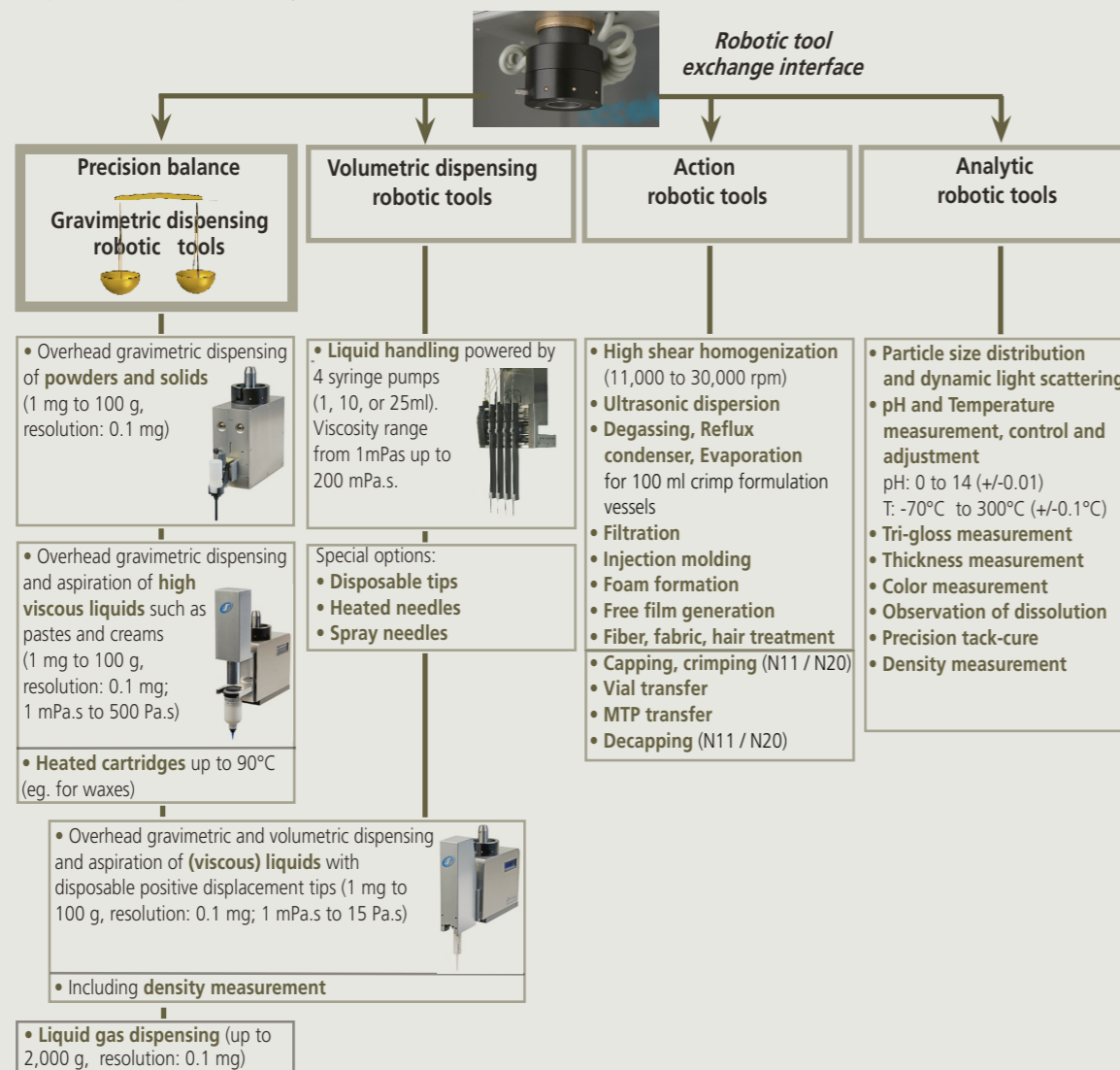
AutoSuite Formax is an intuitive user interface software which allows easy workflow orientated programming. Many features such as the gravimetric dispensing steps are automatically calibrated, eliminating tedious optimisation steps.

- Easy programming: drag-and-drop of formulation workflow steps
- The AutoTeaching tool simplifies the use of the solid and paste robotic dispensing tools, eliminating the need for manual optimization
- Barcode tracking
- Smooth integration into Chemspeed's workflow management software (see reverse)
- AutoSuite Application Programming Interface (API): for 3rd party software and hardware integration, and standard integration of Spotfire, JMP, VirtualLab etc.
- Programmed formulation workflow templates adapted to your formulation needs



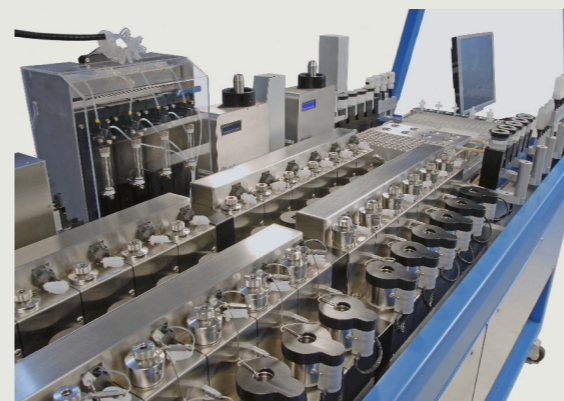
Exchangeable robotic tools and unrivaled gravimetric dispensing technology

More than 30 features can be delivered with Chemspeed's unique robotic tool exchange technology, including unrivaled overhead gravimetric dispensing tools. Generating and analysing complex formulations becomes more efficient and accelerates the product development R&D cycle.



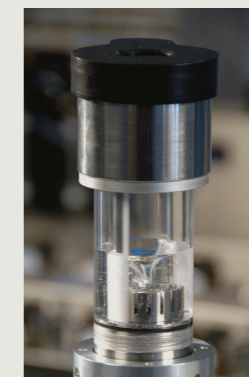
High-performance formulation vessels and modular platform deck

Chemspeed's Formax deck-modularity allows the user to perform complex formulation workflows in a fully automated fashion: from the addition of virtually any type of ingredients (liquid, solid, high viscous etc.) while heating, cooling and mixing, in-line analysis, control and much more.



Example of a tray configuration with 24 high-performance formulation vessels, 3 gravimetric overhead dispensing robotic tools, a variety of racks with vials, syringes, heated and disposable pre-formulation vessels and much more...

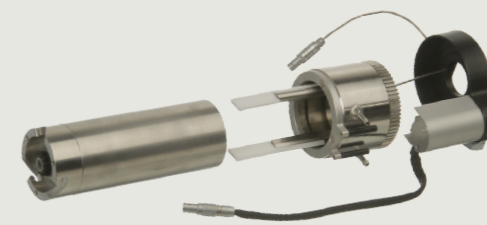
- Individual powerful stirring for each formulation vessel for highest mixing, dissolving, emulsification power
- Agitation up to 6,000 rpm or 600+ rpm at 1,000 Pa.s even during gravimetric addition of highly viscous reagents or powders
- Conveniently exchangeable scrapers for maximum formulation quality (from 20 to 200 rpm)
- Continuous feed pumps
- Various stirrer designs: dissolver disk, rotor-stator etc.
- PT100 internal and external Temperature control +/-0.1°C
- Independent electrical and fluidic heating / cooling systems for highest accuracy (-70 to 250°C +/-0.1°C)
- Calorimetric measurement (calorimetric probe 1W)
- Viscosity measurement / Rheometry
- pH measurement and control
- Vacuum connections for degassing, extraction, evaporation
- Different gas supplies (eg. inert or other gases)
- Large choice of pre-formulation vessels (magnetically stirred, shaken, heated, cooled vessels, reactors, high pressure reactors, disposable vials, etc.)



Internal view of the formulation vessel



various stirrer designs: rotor-stator and dissolver disk



Expanded view of the formulation vessel



Accessories & 3rd party devices

- Formulation adjustment and analysis module: viscosity measurement / adjustment and viscosity control; formulation homogeneity determination; sample aging kit
- Pre-formulation vessels and sample preparation accessories: racks (heatable stirred, stock solution etc.); solvent reservoirs; disposable (process) vials; microplate holders
- Special material preparation devices: pigment grinding
- Other peripherals and tools: microwave heating and synthesis kit; nephelometer; light scattering; centrifuge; cryostats; vacuum pumps; reflux cooler etc.
- Automated cleaning module
- Many tools, including formulation vessels and viscous dispensing cartridges are optionally available as disposables

All tools and accessories of Chemspeed Accelerator Synthesizer, AutoPlant, Swing, Swave, Sweigher, Applicator and Investigator are fully compatible with the Formax platform and vice versa.

High output product development cycle

Chemspeed's view on Hardware and Software integration

Chemspeed's AutoSuite workflow management software integrates with:

Chemspeed's robotic platforms such as:

- Sample preparation instruments
- Synthesis instruments
- Process research instruments
- Formulation instruments (e.g. Formax)
- Application instruments
- Testing instruments

3rd party instruments:

Chemspeed integrates a vast number of 3rd party components (e.g. in robotic tools) and 3rd party instruments. Please refer to other Chemspeed brochures or contact your Chemspeed representative.

3rd party software such as:

- SpotFire (data visualization and selection)
- JMP (design of experiments - DoE)
- VirtualLab (lab journal, workflow management, instrument control)
- and many other laboratory software through industry standard languages (SQL, .net, C#, etc.)

