

SYNCHRONOUS DOSING AND MIXING UNITS

SPECTROPLUS SPECTROFLEX

 think materials management



SPECTROPLUS

SYNCHRONOUS DOSING AND MIXING STATION

One system for all extrusion- and compounding tasks: Whether granulate, regrind, powder, liquids or flakes – The SPECTROPLUS can be adapted to the most diverse dosing requirements. Specially developed for the extrusion and compounding sector, the SPECTROPLUS ensures perfect and constant dosing for continuous processes.



A wide range of applications

With only one frame and space for up to 8 mountable dosing modules, the complete SPECTROPLUS system can be optimally adapted to the most diverse dosing requirements.

Thanks to its modularity the unit can not only be used as a gravimetric or volumetric dosing system, but also be combined and used for both starve-fed and flood-fed processes.

Modular design

From free-flowing granulates and regrind to non-free-flowing powders or flakes, motan offers the right solution for every bulk material, throughput and flow property.

The dosing modules of the SPECTROPLUS were developed in a modular design for various bulk materials and throughputs (see also p.5). This makes it easy to replace or extend the system with filters, screw types, dosing sleeves or agitators.



Easy exchange of dosing screws / gearboxes



Interchangeable dosing screws

All dosing screws are interchangeable and available in different versions such as spiral, auger or concave, single and double screws. Switching is quick and easy, saving money and time.

Removable back panel and material outlet / slider



Easy retrofit and modification

Thanks to its modular design, the SPECTROPLUS is not only easy to maintain but can also be adapted for different applications, easily and flexibly.

Especially when changing materials, the time needed has been reduced through improved cleaning options.

For low-throughput applications, it is even possible to completely replace or exchange the dosing modules – without any tools.

Digital load cell system – From adjustment to the filtered measurement signal in just a few minutes.

For the SPECTROPLUS, motan uses a combination of a high-quality six-wire strain gauge load cells and the latest generation of digital transducer electronics.

The transducer electronics enables optimization of the weighing signal and transfers this directly to the controller via CAN – even over long distances. All possible errors of the analog signal transmission are excluded through this method.

The key advantages of this technology are:

- Easy installation and calibration
- Durable and low maintenance hardware
- Failure-free signal transmission
- Not prone to external disturbing factors



CAN motors

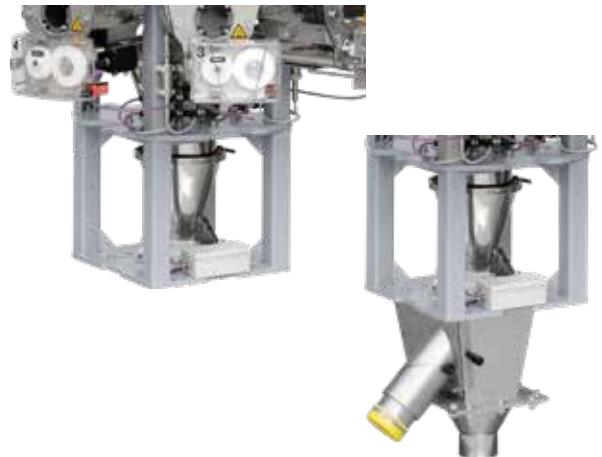
The new 24 V CAN motors can be used worldwide without the need to adapt to local voltages. They are maintenance-free due to their brushless design.

SPECTROPLUS

Easy and quick installation

The installation is not only simple, but also saves space due to its compact design.

Using simple adapters, the SPECTROPLUS can be mounted directly on the material in-take of the extruder or on a customer-specific mezzanine. The overall height has been noticeably reduced – and that with the same throughput rate.



Liquid dosing

In addition to dosing modules for solids, gravimetric supply hoppers with dosing pumps for liquids can also be used.

Depending on the application, either gear dosing pumps for lubricating fluids or piston diaphragm pumps for non-lubricating fluids are used for dosing.

SPECTROnet – System control

SPECTROnet can be used to control all volumetric and gravimetric dosing modules of the SPECTROPLUS modular system as well as external dosing units.

The latest software in combination with new hardware has improved the control time and increased the unit's area of application. Thanks to CAN technology, each setup can now be easily configured via the large touchscreen and individually tailored to the process.

The SPECTROnet can control and combine up to 8 SPECTROPLUS / SPECTROFLEX dosing modules.



SPECTROPLUS

TECHNICAL DATA

Device-specific information - Dosing modules SP

Modules for free-flowing granules	FG S1	FG S2	FG S3	FG S4	FG M1	FG M3	FG L2	FG L3
Throughput (l/h)*	1.5-25	5-80	7-120	35-700	80-1300	180-3000	280-3750	400-4400
Auger screw / dosing screw sleeve	12x10/21	17x11/26	17x17/26	32x16/48	32x32/48	43x40/60	43x80/60	58x100/72

* Throughput with granules / bulk density 0.82 kg/l

Modules for free-flowing regrind	FR S4	FR M1	FR M3	FR L2	FR L3
Throughput (l/h)*	20-320	45-800	130-2000	180-3000	270-4000
Auger screw / dosing screw sleeve	32x16/48	32x32/48	43x40/60	43x80/60	51x70/72

* Throughput with coarse regrind (ABS-PC) / Bulk density 0.48 kg/l

Modules for good flowing powders	FP S1	FP S2	FP S3	FP S4	FP M1	FP M2	FP L1	FP L3
Throughput (l/h)*	1-4	1.5-9	3-18	30-200	60-400	140-900	260-2000	300-2700
Auger screw / dosing screw sleeve	12x5/21	17x11/26	17x17/26	32x16/48	32x32/48	51x25/60	51x70/60	58x100/72

* Throughput with uncoated chalk / bulk density 0.91 kg/l

Modules for non-free-flowing powders	NP S1	NP S2	NP M1	NP M3	NP L1
Throughput (l/h)*	1-4	7-50	22-160	130-800	90-600
Twin dosing screw (auger) / dosing screw sleeve	13x11/19	20x11/26	22x20/26	35x40/38	32x30/38

* Throughput with coated chalk / bulk density 0.82 kg/l

Modules for non-free-flowing regrinds / flakes	NR M1	NR M3	NR L1	NR L3
Throughput (l/h)*	12-150	60-500	100-1300	150-2200
Spiral screw / dosing screw sleeve	30x32/48	50x25/60	43x40/60	43x80/60

* Throughput with flakes (PE/PET) / Bulk density 0.37 kg/l

Modules for liquid dosing	LGP S1	LGP S2	LGP M1
Throughput (l/h)*	0.003-8.8	0.72-68	0.34-228
Dosing pump type	Gear pump	Gear pump	Gear pump

Dimensions dosing modules SP

Dosing module	SL	S1	S2	S3	S4	M1	M2	M3	L1	L2	L3
Volume (l)	11	7	14	20	27	50	75	100	80	135	185
Diameter (mm)	235	235	235	235	235	430	430	430	580	580	580

Technical data - Frame

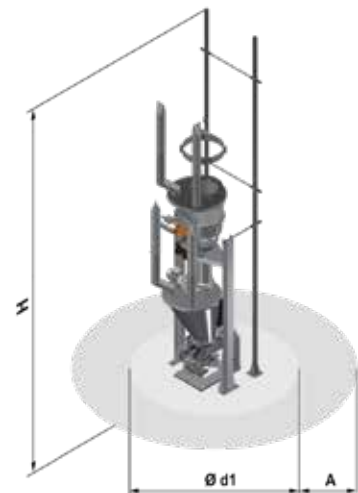
Dimensions (mm)	Single frame	Multiple frame
Ø d1 - footprint	1200	1800
A - minimum space	1000	1000
H - max.	approx. 4000	approx. 4000

Technical data - Electrics

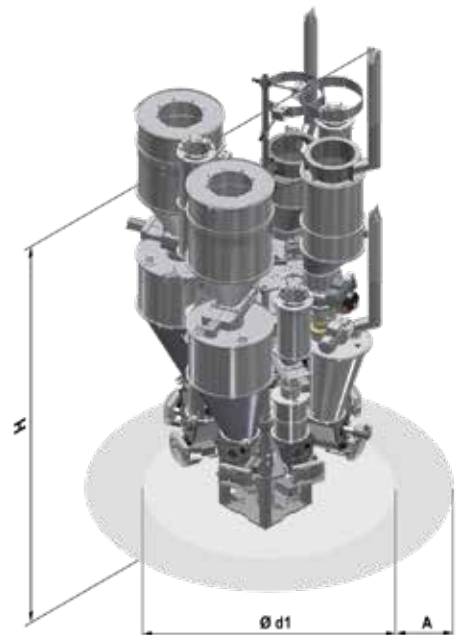
	SPECTROnet 4 / 8
Rated voltage (V/Hz)	3/PE 400/50-60
Rated current (A)	2.5
Rated output (kW)	4 / 8
Pre-fuse (A)	6
Control voltage (VDC)	24
Protection type switch cabinet	IP 54
Ambient temperature (C°)	0 - 40

Subject to technical changes.

SPECTROPLUS - Single frame



SPECTROPLUS - Multiple frame



YOUR BENEFITS

- Continuous loss-in-weight monitoring of the mass flow
- Direct input of the desired ratios
- Set points can be directly entered, even during operation
- Continuously updated display of set values/actual values
- High dosing accuracy and dosing consistency
- Ease of operation leads to minimal downtime and quick material changes
- Easy reconfiguration or retrofitting due to modular design
- Savings in size due to compact design and quick refill system
- Fast material changes through emptying of material via a slide gate
- Easy and quick cleaning of the installed dosing modules via the removable back panel

SPECTROFLEX V/G

SCREW DOSING UNIT

SPECTROFLEX is ideally suited for dosing powders, pellets, regrind, granulates, flakes and fibers in continuous processes. motan's unique interchangeable system provides two huge advantages over common dosing units. Firstly, the user can swap the quick exchange modules in less than one minute easily without any tools. Furthermore, the single and twin screw exchange modules are also interchangeable, allowing the user to configure the feeder for nearly any type of material in a matter of minutes.

Dosing of powder and non-free flowing materials

The dosing screws and the intensity of the discharge aid (massage rollers) of the SPECTROFLEX can be adjusted to the type of material.

Active filling of the dosing screw

The massage roller technology creates an active filling of the dosing screw without a mechanical agitator needing to be in the material flow.

Exchange module

The exchange modules can be swapped easily and without any tools. So, material changeovers can be made quickly and without previous clean-down of the dosing hopper.

The exchange modules come in different versions, equipped with either single, double, spiral or auger screws, allowing the user to configure the dosing unit for nearly any type of material in a matter of minutes.

No mechanical agitators

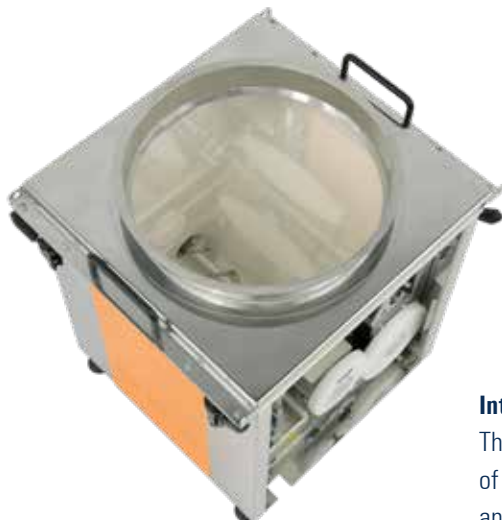
Thanks to the massage rollers you don't need to use mechanical agitators which are in direct material contact. So even difficult and fragile materials will not be damaged.



Elliptical massage rollers

In contrast to common massage paddles, which are normally used with other dosing hoppers on the market, the SPECTROFLEX uses elliptical rollers. The specific design of the oscillating massage rollers increases the lifespan of the polyurethane dosing hopper.

Powered by an independent motor, the elliptical massage rollers can be set to 48 different settings, guaranteeing you optimal dosing for various materials.



Interchangeable dosing screws

The pluggable screws can be exchanged in a matter of minutes. This makes adjustments of the throughput easy and shortens production downtime tremendously!



Volumetric version

If you need to dose material that has a very stable and consistent bulk density, then a load cell is not required.



Gravimetric version

If you need to dose material very precisely or with unstable bulk density incl. batch tracking, then a load cell is required.



Platform scale with DMS load cell

The platform scale is available in two sizes: DMS load cells with either 150 kg or 300 kg nominal load are available. With integrated digital weighing electronics and a CAN system. As well as a measurement resolution of up to 5,120,000 digits.



VOLUnet SF control

A simple to operate touchscreen for SPECTROFLEX V

- Suitable for one dosing unit
- Up to 50 recipes can be stored
- Reporting function via Ethernet
- Standard network interface (Ethernet) for integration in the motan CONTROLnet network

GRAVInet SF control

A simple to operate touchscreen for SPECTROFLEX G

- Suitable for up to 2 dosing units
- Up to 50 recipes can be stored
- Reporting function via Ethernet
- Standard network interface (Ethernet) for integration in the motan CONTROLnet network

SPECTROFLEX V/G

SCREW DOSING UNIT

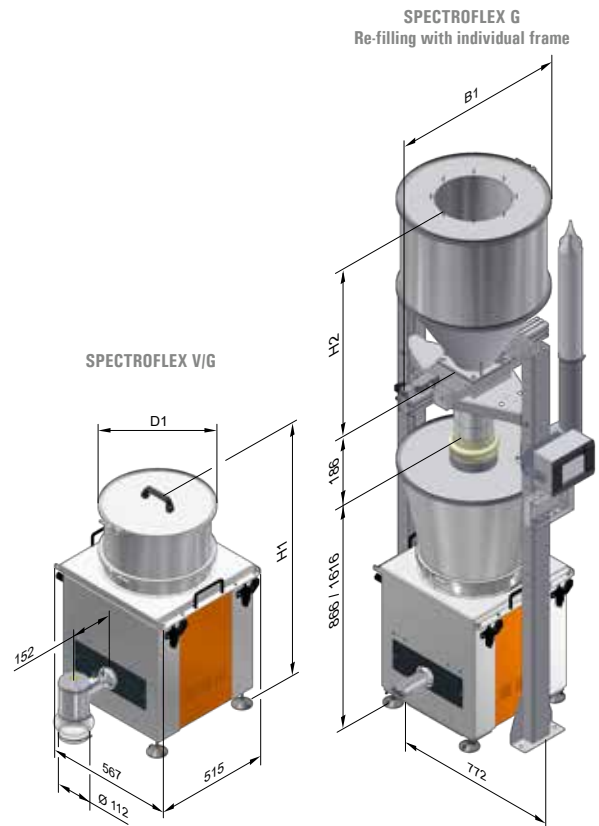
Device-specific information				
Dosing module - free-flowing granules (FG)	FG M1	FG M2	FG L2	FG L4
Throughput (l/h) *	2.5 - 52	19 - 358	101 - 1900	163 - 3245
Auger screw / dosing sleeve	17x17/20	32x32/36	51x70/60	63x100/72
* Throughput with granulate / bulk density 0.82 kg/l				
Dosing module - free flowing regrind (FM)	FM M1	FM M2	FM L1	FM L3
Throughput (l/h) *	1.8 - 60	25 - 350	90 - 1689	160 - 2900
Auger screw / dosing sleeve	17x17/20	32x32/36	51x25/60	63x100/72
* Throughput with rough regrind (ABS-PC) / bulk density 0.48 kg/l				
Dosing module - good flowing powders (FP)	FP M1	FP M2	FP L1	FP L3
Throughput (l/h) *	8 - 130	16 - 280	33 - 560	160 - 1950
Auger screw / dosing sleeve	32x16/36	32x32/36	51x25/60	63x100/72
* Throughput with uncoated chalk / bulk density 0.91 kg/l				
Dosing module - non-free-flowing powders (NP)	NP M1	NP M2	NP L1	NP L3
Throughput (l/h) *	2.6 - 49	7 - 131	20 - 357	33 - 603
Twin screw concave / dosing sleeve	20x11/26	22x20/26	32x30/38	35x40/38
* Throughput with coated chalk / bulk density 0.82 kg/l				
Dosing module - non-free-flowing regrind (NR)	-	-	NR L2	NR L4
Throughput (l/h) *	-	-	78 - 720	135 - 1570
Spiral screw / dosing sleeve	-	-	43x40/60	50x50/60
* Throughput with flakes (PE/PET) / bulk density 0.37 kg/l				

Technical data - SPECTROFLEX V/G						
Dosing module - bin	M1	M2	L1	L2	L3	L4
Volume (l)	55	85	100	150	200	250
Number of dosing module	1	1	1	1	1	1
Weight (kg)	63	65	73	77	81	85
Dimensions (mm)						
D1	430	430	580	580	580	580
H1	860	1060	1150	1350	1550	1750

Technical data - SPECTROFLEX G - Re-filling with individual frame												
Dosing module - bin	GM1	GM2	GL2	GL4	FPM1	NPM1	FPM2	NPM2	FNL1	FPL1	FPL3	NPL3
Volume (l)	48	73	150	250	50	68	88	100	138	150	200	188
Dimensions (mm)												
B1	656	656	718	757	490	480	490	490	592	620	620	592
H2	632	832	833	1433	762	917	817	782	817	914	1182	1149

Subject to technical changes.

Technical data - Electrics	
Rated voltage (V/Hz)	1/N/PE 230/50-60
mahlgut Rated current (A)	2.5
Rated output (VA)	250
Pre-fuse (A)	6
Control voltage (VDC)	24
Protection type switch cabinet	IP 54
Short-circuit breaking capacity (kA)	6



YOUR BENEFITS

- Dosing of powder and composite materials (glass fibers, carbon fibers etc.)
- Volumetric version
 - The cost-effective solution for materials with consistent bulk densities.
- Interchangeable dosing screws
 - Save money with faster material changes
- No mechanical agitators
 - Due to the massage rollers you can also dose difficult and fragile materials
- Active filling of the dosing screw
 - High dosing accuracy - even for small dosing quantities
- Elliptical massage rollers
 - Little wear and abrasion of the flexible dosing hopper
- Quick material changes with exchange modules
 - Higher efficiency thanks to less downtime in your production
- VOLUnet SF control
 - The cost-effective solution for volumetric dosing
- GRAVInet SF control
 - The cost-effective solution for up to 2 SPECTROFLEX G dosing modules

