CENTRAL MATERIAL HANDLING

Conveying and Drying for Plastics Processing Plants

world of innovation

Feedmax B plus
Central material loaders

The **Feedmax B** series loaders are built for highest functionality and demanding applications. The modular design of these vacuum loaders guarantees specific adjustment to meet individual customer requirements, as well as for simple cleaning.

Superior wear resistance
Pneumatically actuated cast stainless steel material and vacuum valves for highly abrasive feeding applications.

Low maintenance
Interchangeable stainless steel center section offers low maintenance and allows hopper capacity to be easily changed.

Ergonomic design
A hinged lid without valves or hose connections offers unmatched accessibility for simple cleaning.

Simple cleaning
One self-locking toggle latch is easily accessible and opens towards the operator.

Easily visible status LEDs
and pluggable control cable for all network control systems.

Reliable material demand
via proximity sensor standard with high heat execution.

Die **pneumatisch betätigte Auslaufglocke** garantiert hohe Funktionssicherheit durch eine vollständige Abdichtung während des Förderzyklus.

Feedmax Clean

The Feedmax Clean vacuum loader was specially developed to meet the increasing demands of a circular economy and the associated increase in dust particles contained in the granules to be conveyed. Due to a permanent circulation of the conveyed granules at a low volume flow, which lasts throughout the entire conveying process, the Feedmax CL loader can separate a large amount of dust and fine particles.

- Separation of up to 5 times the amount of dust and fine particles < 1,000 µm from the conveyed granules compared to a conventional loader
- Gentle dedusting in the cleaning chamber due to low flow rate
- Noticeable increase in quality of the granules for the subsequent processing
- Optionally equipped with a glass section (clear tube) to visually monitor the material flow and the separation process of the fines

GM blower stations and central conveying

Blower/ pump model	Pump type	GM central conveying	Power [kW]	max. Airflow [m3@50Hz] [cfm@50Hz]	max. Pressure [mbar@50Hz] [in.Hg@50Hz]
03	Side channel blower single stage	•	1.5	210 (123)	200 (5.9)
05	Side channel blower single stage	•	2.2	305	230
07	Side channel blower 2-stage	•	3	210 (123)	340 (10.0)
09	Side channel blower 2-stage	•	4.3	310 (182)	360 (10.6)
13	Side channel blower 2-stage	•	7.5	500 (294)	400 (11.8)
29	Claw pump	•	4.2	200 (117)	700 (20.6)
31	Claw pump	•	5	250 (147)	700 (20.6)
33	Claw pump	•	6	300 (176)	700 (20.6)

Claw vacuum pump

Central filter stations

CS cyclone filter station

» **2-stage filtration system**
In first stage pre-filtration takes place by means of the cyclone effect and in the second stage, micro filtration occurs by means of a polyester micro filter.

» **Effective dust blow-off and user-friendliness**
The filter surface is cleaned by means of implosion, and the dust is blown into a dust collection bag. For visual inspection, the dust container is executed in robust glass.

XMB filter station

» **2-stage filtration system**
In first stage pre-filtration takes place by means of the cyclone effect and in the second stage, micro filtration occurs with a polyester micro-filter having 3 m^2 of surface area.

» **User-friendly**
The dust container can be removed during operation for emptying.

» **Choice of dust container**
The dust collection area is kept pressureless through a shut-off valve in the discharge cone of the filter and therefore allows the use of any dust collection container, e.g. a plastic bag.

XMB filter station

Machine hopper

Machine hopper for Feedmax

Machine hoppers ranging in size from 3 l to 60 l guarantee the optimum volume of the material inventory to the total material throughput and thus, the performance of the entire system.

» **Stainless steel construction with sight glass**
Sight glass for abrasive uses as well as visual control of the material flow.

» **Assembly**
Slotted holes in the flange allow easy attachment for various mounting hole patterns.

M8
Network control system

The **M8** network control system was developed for the administration of medium to complex network configurations with up to 320 network participants. Every participant is connected via a bus module to the network and can be configured for a specific task. This guarantees the maximum flexibility for the set up of customized material handling systems.

» **M8 touch-screen**
The high-resolution touch-screen simplifies user control, as well as the adjustment of process parameters and allows the user a comprehensive view of all attached units.

» **Line server LS-B30T**
Provides for the control of up to 31 freely configurable bus modules, which can be connected in parallel to one CAN-Bus line. All functions which are available for the respective bus modules can be managed and controlled from the line server. A complete system can have up to 8 individual CAN-Bus lines.

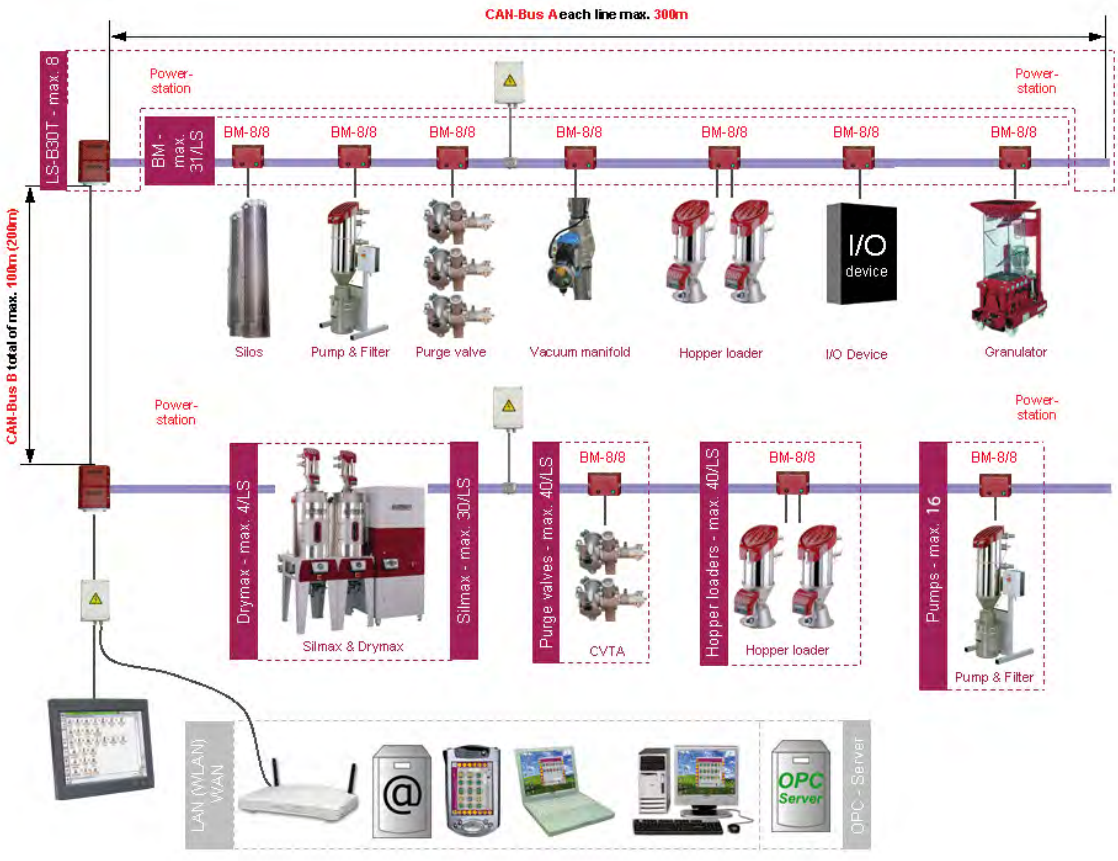
» **Bus module BM-8/8**
Provides individual control of vacuum loaders, blower stations, central filters, dry air valves, purging valves, etc. Any function can be assigned to the 4 digital inputs and outputs of the bus modules and therefore, gives the system virtually unlimited possibilities of configurability for each particular application.

M8 15" XVGA touch-screen

Line server LS-B30 T

Bus module BM-8/8

M8 functional scheme



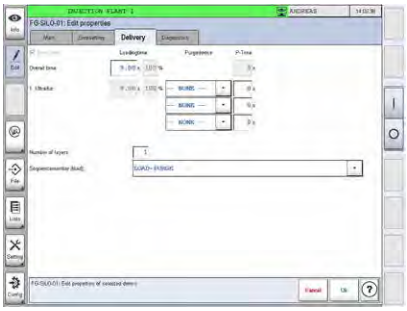
M8 – Software features

Material based representation

Visualization of the conveying system using lines to represent the respective material flow of the entire system.

» **Clear representation**
The partially complex single material flow is displayed with a few symbols.

» **Simple changeover**
Switch to vacuum line representation or other displays.



Vacuum loader display

» **Adjustment of the loading time**
Adjustment can be made at any time in the edit mode.

» **Conveying sequence**
In the presence of a purging valve adjustment of the optimum loading sequence.

M8 – Networked drying systems

The **M8** control system permits the connection of **Drymax** battery dryers with network cards to the central **M8** control system. This allows the visualization of internal parameters and conditions on the generously dimensioned **M8** control screen as well as the entry of temperature values for the various connected drying hoppers.

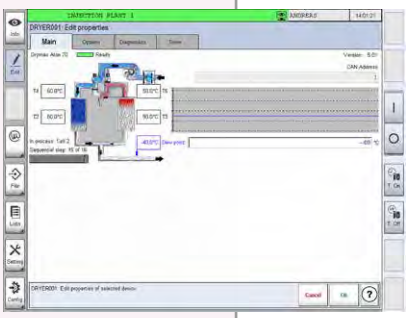
» **Connection**
of up to 32 battery dryers with 240 drying hoppers.

» **Optimized control**
Manages internal process of the dryer with failure analysis.

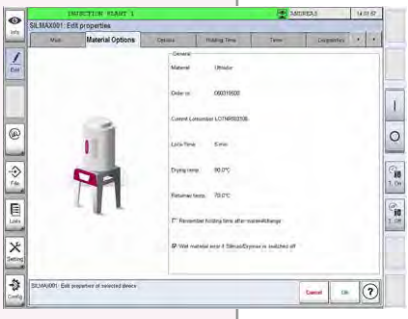
» **Dew point recording**
In the presence of a dew point sensor the actual values are captured and recorded over a 12 hour time period.

» **Management of material data**
Includes all drying hoppers attached to the networked dryer.

» **Central error display**
All error messages are transferred to the **M8** control and centrally displayed.



Drymax specifications



Silmax specifications

Barcode screen

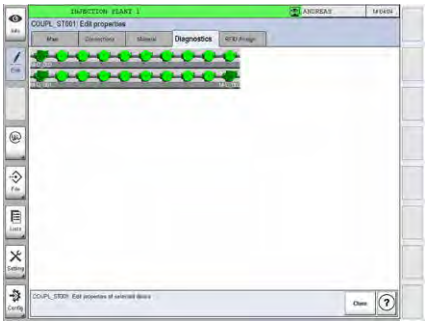
M8 – Coded material source licence and batch administration

Choosing the wrong material for a drying hopper in the course of a material change procedure is not only leading to weak drying results, but can also have fatal consequences for the production of parts. To minimize this risk, and after having activated a licence, the **M8** network control can monitor this process. For the clearance of the conveying process, the operator has to define the material change at the control device, and afterwards to confirm the material source and the suction lance via barcode scan. If this is done correctly, the charging process starts. If not, an error message is displayed, and the charging process (with the wrong material) is not executed. This function can even be extended applying the **WiMaTRACE** batch monitoring function.

Codemax – RFID coupling station

The coded Coupling Station **Codemax** avoids the erroneous connection of the wrong material to the processing machine.

» **RFID coding**
A transponder, working on the basis of "Radio Frequency Identification" (RFID), permits remote recognition of a 64-bit identifier. By means of this technology, electrostatic charges which are inherent to the material conveying process cannot cause damage to the electrical components.



M8 Coupling station – Visualization

Codemax – RFID coupling station

M8 – Connection to ERP systems

All relevant control data and parameters can be transferred to a company wide enterprise resource planning (ERP) and process data monitoring (PDM) system via the open standard protocol OPC UA.

For the connection to a PDM system the **M8** control system is optionally equipped with an OPC UA Interface Licence, which enables the communication between an external computer and the control system. A customer supplied OPC UA client accepts the required data from the **M8** control system and manipulates it internally. The data exchange happens via the Ethernet interface.

Drymax 180 – 1200
Battery dryers

The **Drymax** battery dryer series are equipped with two desiccant beds and therefore provide continuous process air and constant dry air quality for the perfect drying of plastic resin.

» **Dew Point up to -60°C (-76°F)**

» **Weekly timer**

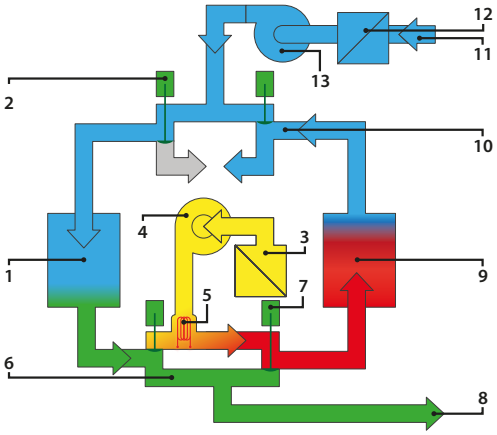
» **Switchover valves, stop position controlled**
The switchover valves provide optimized control of drying and regeneration cycles in both desiccant beds.

» **Energy saving regeneration**
Reduces energy costs through fastest dehumidification of the desiccant beds during the regeneration phase.

» **SmartReg energy saving function**
Time-optimized control of the regeneration and cooling of the desiccant beds.

» **Micro particle filter in return air**
Dust separation efficiency of up to 99.9% for high process safety.

» **Side channel blowers**
For separate process and regeneration blowers in order to guarantee constant air flow even during fluctuating pressure conditions.



1 Desiccant bed(in Process)
2 Switchover valve 1
3 Inlet filter
4 Regeneration blower
5 Regeneration heater
6 Switchover valve 3
7 Switchover valve 4
8 Process air
9 Desiccant bed 2 (in regeneration)
10 Switchover valve 2
11 Return air
12 Microfilter
13 Process blower

Options

» **Dew point sensor**
For dew point desiccant bed changes – visualization with alarm function.

» **Return air cooler**
For high-temperature applications up to 180°C.

» **Micro particle filter for process air**
For e.g. transparent applications.

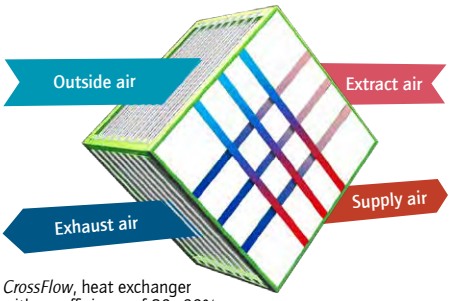
» **EcoDrive – Frequency-controlled process blower**
For automatic adjustment of the dry air volume.
Enables additional energy savings in partial load operation.

» **Redundant dryer control**
Guarantees optimum operation of the entire drying battery.
Switching on/off of up to 3 additional dry air generators.
For maximum energy savings.

Aton 1000
Battery dryer

The **Aton 1000** battery wheel dryer is equipped with a clocked rotating segmented wheel, thus allowing for a constant creation of dry air. The highly developed drying wheel named **ECO wheel** is isolated and consists of several segments that are closely filled with a highly efficient desiccant, thus allowing operation at a constanctly low dew point.

- **Intelligent CrossFlow function**
  Heat exchanger with closed circuit leading to a reduction of energy consumption.
- **Isolated ECO wheel drying wheel**
  Allows to operate the dry air dryer at a low dew point of up to -65 °C (-85 °F).
- **Chain drive with automatic tensioning device**
  For less maintenance and reliable operation.
- **5,7" Touch-screen user interface**
  For an easy input of the dryer settings.
- **AmbiLED performance indication**
  Not only the operation mode of the dryer is displayed, but also its actual performance.
- **User-friendly access for maintenance**
  Return air filter and regeneration filter are accessible from the outside.



CrossFlow, heat exchanger with an efficiency of 80–90%, schematic representation

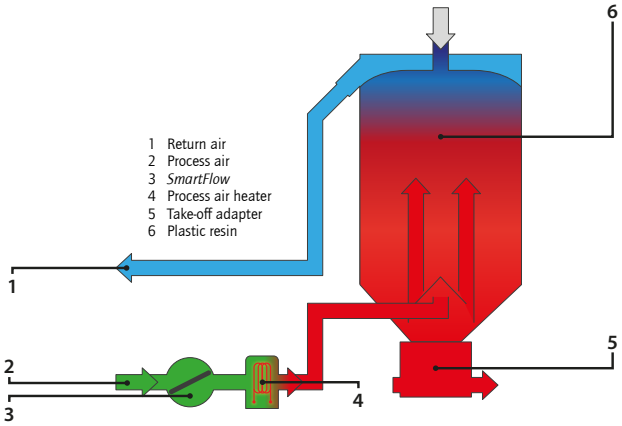
Options

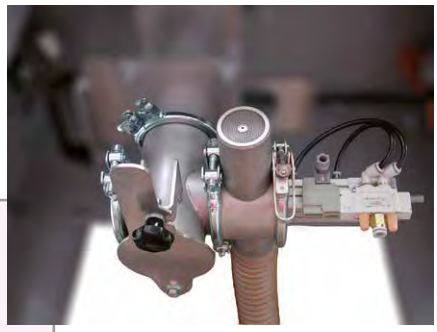
- **Dew point sensor**
  For a dew point controlled drying process – visualization with alarm function.
- **Return air cooler**
- **Micro particle filter for process air**
- **Frequency-controlled process blower**
- **Redundant dryer control**
- **Automatic activation/deactivation of dry air generator**
  Optimization of the overall performace of the drying system.

Silmax 100 – 1200
Drying hoppers

The **Silmax** drying hoppers with integrated microprocessor control are available in table versions from 100 up to 1,200 l.

- **Robust stainless steel execution**
  All components in contact with the material are made of stainless steel and are therefore perfectly suited for critical and abrasive applications.
- **Efficiency enhancing insulation**
  The drying hoppers are equipped with 40 mm thick insulation across the entire height in order to reduce heat losses and increase drying efficiency.
- ***SmartFlow* intelligent air distribution**
  Automatic air distribution to adjust to different materials and fluctuating material demands.
- **Integrated CAN interface**
  Allows extensive data exchange and status forwarding between the dryer and a central system for visualization.
- **Convenient clean out door**
  Drying hoppers of sizes 100 l and up are equipped as standard with a clean-out door ideally suited for the respective hopper diameter. The perfect geometry of the hopper guarantees uniform drying of the material across the entire cross section.
- **Integrated sight glass**
  For the convenient visual inspection of material flow and material level.
- **Material slide gate**
  All drying hoppers are included as a standard with a manual slide gate.
- **Material saver function**
  Avoids over-drying and thermal degradation of the plastic resin through short term lowering of the drying temperature during production stoppages of the processing machine.





Options
Vacuum take-off adapter

Available with one or two material outlets as well as with controlled discharged valve for the efficient purging after the loading cycle (in connection with WITTMANN **M8/Net5** control system).

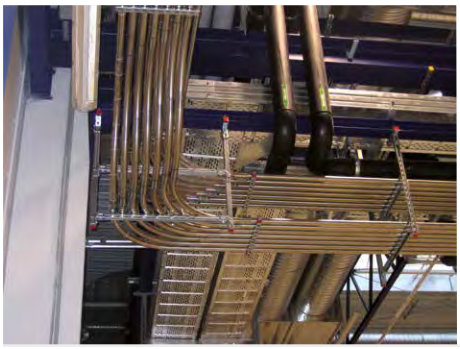
Drymax/Aton/Silmax application table

Material	Drying time	Temp.	Bulk density	Drymax [kg/h]						Aton 1000	Silmax [kg/h]								
	[h]	[°C]	[kg/dm³]	180	300	450	600	900	1200	[kg/h]	100	150	200	300	400	600	800	1,000	1,200
ABS	2.5	80	0.63	111	185	278	370	556	741	617	25	38	50	76	101	151	202	252	304
ASA	3	80	0.66	111	185	278	370	556	741	617	22	33	44	66	88	132	176	220	264
CA	2.8	65	0.78	73	122	183	244	366	488	407	31	47	62	94	125	187	250	312	376
CP	2.5	70	0.74	78	130	195	260	390	519	433	30	44	59	89	118	178	237	296	356
EVA	2	80	0.57	63	105	157	210	315	420	350	29	43	57	86	114	171	228	285	344
IONO-MERE	3.5	90	0.56	69	116	174	232	347	463	386	16	24	32	48	64	96	128	160	192
PA 11	3	75	0.62	110	184	276	368	552	736	613	21	31	41	62	83	124	165	207	248
PA 12	3	75	0.62	87	145	217	290	435	580	483	21	31	41	62	83	124	165	207	248
PA6	3	80	0.68	85	142	213	284	427	569	474	23	34	45	68	91	136	181	227	272
PA6.6	3	80	0.68	85	142	213	284	427	569	474	23	34	45	68	91	136	181	227	272
PA6.6GF35	3	80	0.85	103	172	259	345	517	690	575	28	43	57	85	113	170	227	283	340
PBT	3.5	120	0.81	105	174	262	349	523	698	581	23	35	46	69	93	139	185	231	276
PC	3	120	0.72	134	224	336	448	672	896	746	24	36	48	72	96	144	192	240	288
PEEK	4	160	0.79	71	118	177	236	354	472	394	20	30	40	59	79	110	158	198	236
PE filled	3	90	0.57	81	135	202	269	404	538	448	19	29	38	57	76	114	152	190	228
PEI	3.5	150	0.76	129	214	321	429	643	857	714	22	33	43	65	87	130	174	217	260
PE	1.5	90	0.56	81	135	202	269	404	538	448	37	56	75	112	149	224	299	373	448
PES	3.5	150	0.82	118	197	296	395	592	789	658	23	35	47	70	94	141	187	234	280
PET	4	125	0.84	105	174	262	349	523	698	581	21	32	42	63	84	126	168	210	252
PET-A	6	170	0.84	85	141	211	282	423	563	469	14	21	28	42	56	64	112	140	168
PETG	4	65	0.76	103	172	259	345	517	690	575	19	29	38	57	76	114	152	190	228
PMMA	3.5	80	0.71	98	164	246	328	492	656	546	20	30	41	61	81	122	162	203	244
POM	2.5	100	0.85	108	181	271	361	542	722	602	34	51	68	102	136	204	272	340	408
PP	1.5	90	0.54	90	150	225	300	450	600	500	36	54	72	108	144	216	288	360	432
PPO	2.5	100	0.64	112	186	280	373	559	745	621	26	38	51	77	102	154	205	256	308
PPS	3.5	150	0.80	110	184	276	368	552	736	613	23	34	46	69	91	137	183	229	276
PS	1.5	80	0.63	111	185	278	370	556	741	617	42	63	84	126	168	252	336	420	504
PSU	2.5	140	0.74	71	118	176	235	353	470	392	30	44	59	89	118	178	237	296	356
PUR	2.5	90	0.73	90	150	225	300	450	600	500	29	44	58	88	117	175	234	292	352
PVC	1.5	70	0.81	157	261	391	522	783	1,043	870	54	81	108	162	216	324	432	540	648
SAN	2.5	80	0.65	121	201	302	403	604	805	671	26	39	52	78	104	156	208	260	312
SB	1.5	70	0.63	102	170	256	341	511	682	568	42	63	84	126	168	252	336	420	504
TPE-E	3	100	0.71	88	147	221	294	441	588	490	24	36	47	71	95	142	189	237	284
TPE-U	2	90	0.73	96	160	239	319	479	638	532	37	55	73	110	146	219	292	365	440

Applications

The modular design of the WITTMANN **M8** hardware and software components and the arbitrary configuration enable the flexible realization of various special applications, like the equal load and automatic switchover between vacuum pumps, the controlled assignment of material sources to machines.

The use of high-quality installation material guarantees long life and trouble-free operation. The conveying of abrasive materials is accomplished preferably with glass elbows. The high performance **Net5 system, E-Max 2** and **M8** network controls are designed for highest durability. An important part of a highly reliable system is the professional and proper assembly of conveying tubes and connections. This includes the professional mounting of conveying tubes and connections.



"No two central material handling systems are equal." –
As varied as production facilities, so are the requirements on the central material handling system. Innovative product solutions are required more than ever before and can be achieved through the highly efficient WITTMANN controls.

"One-stop shopping." The extensive and innovative peripheral equipment program from WITTMANN allows the realization of demanding complete systems and the assignment of responsibility for the proper interaction of the single components. For service, a single phone call will cover the entire spectrum of WITTMANN products.

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