

DRYING



Compact dryers

LUXOR

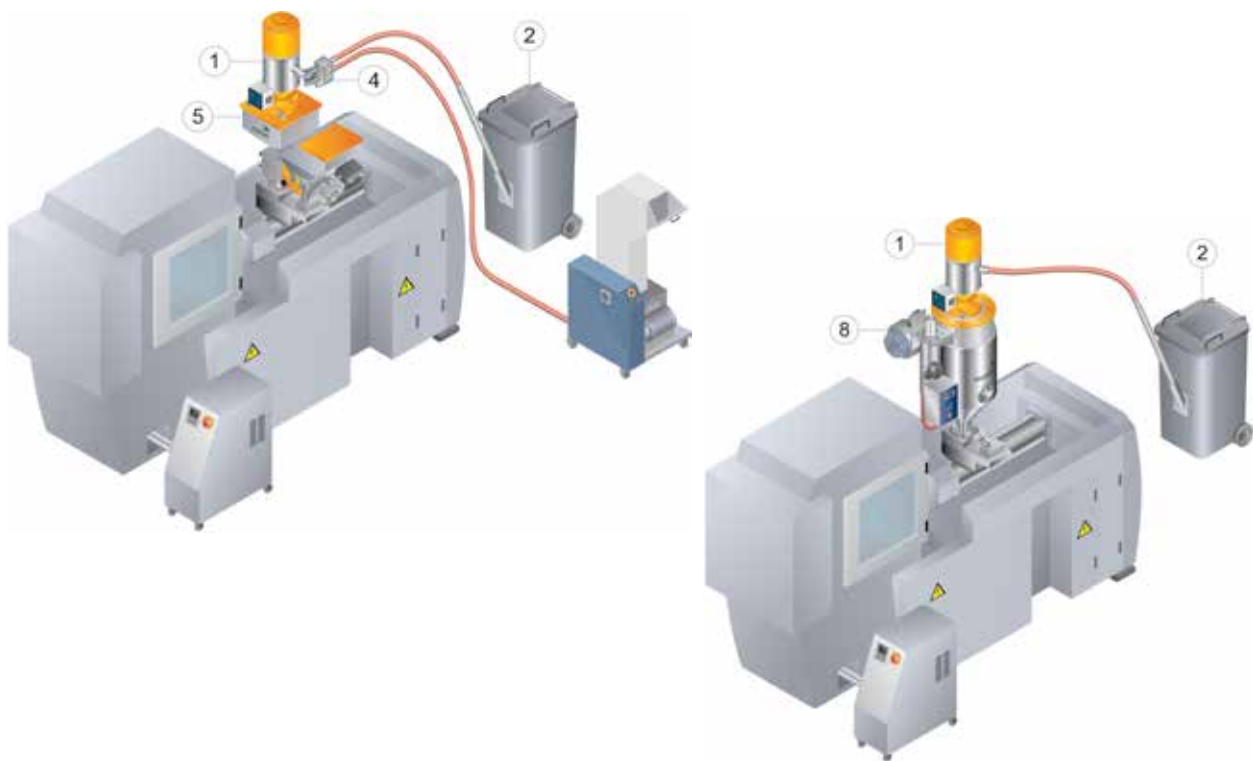
 think materials management



INCREASING PRODUCTIVITY WITH THE LEAST CAPITAL EXPENDITURE

motan's single units comprise a range of equipment for optimising and automating plastics processing machinery production. All units can be combined or expanded in order to satisfy increasing and changing requirements. They help the plastics processor to equip their individual machines or production cells. In the case of injection moulding, extrusion or blow moulding machines, cost savings can be easily achieved with minimum outlay.

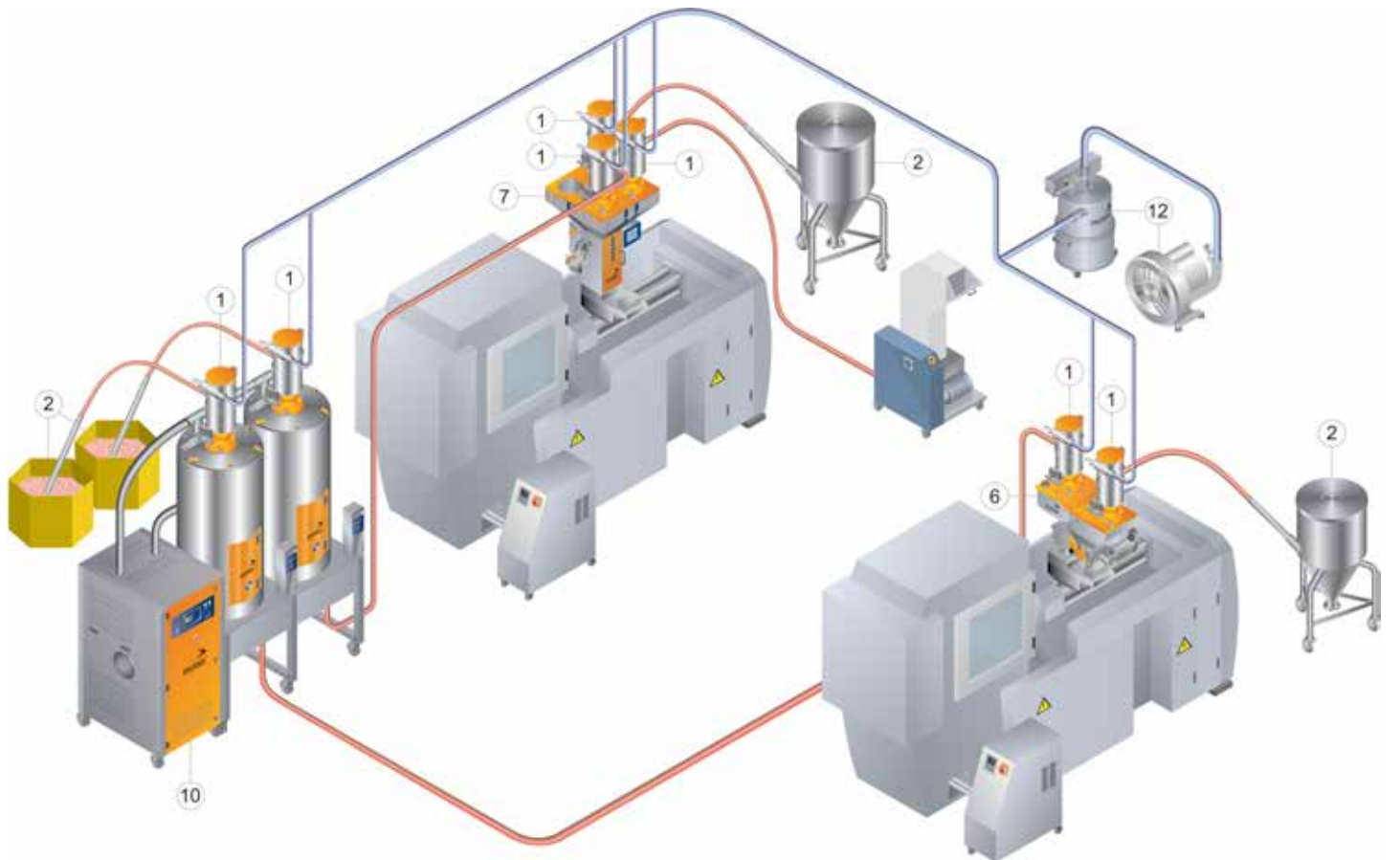
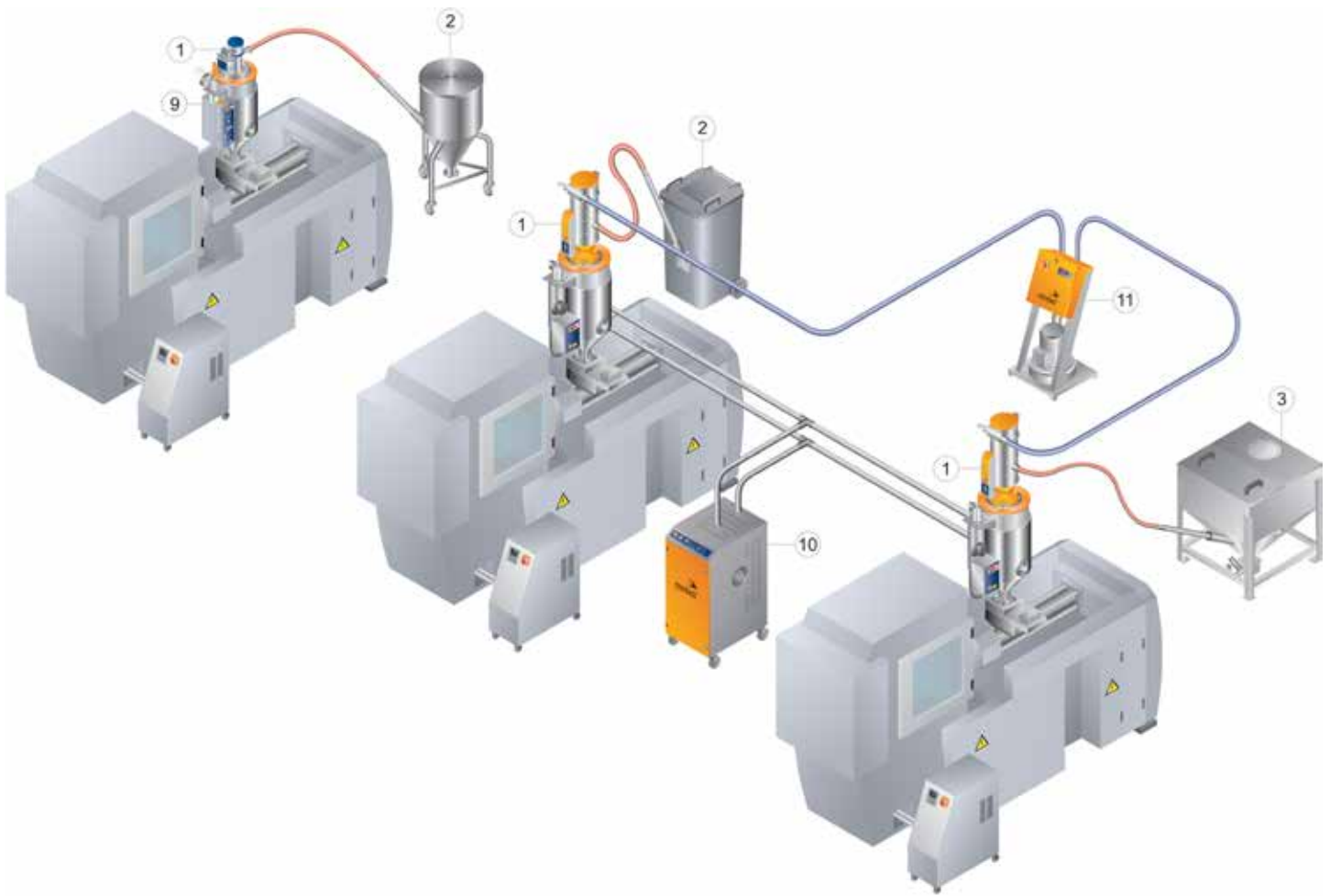
Individual applications and problems are rapidly solved and may be the first steps towards a later system solution. The single units correspond to motan's high quality standard in spite of lower prices and are available through motan's world-wide distribution and service network. All units may of course be integrated into system solutions.



EXAMPLES FOR STEP-BY-STEP AUTOMATION OF INJECTION MOULDING MACHINES

KEY FEATURES

- Material bins for clean and clearly arranged material storage
 - Dryers for energy-saving material drying to a defined residual moisture, or removing surface moisture and preheating of material
 - Conveying equipment for automatic material transport and supply to the machine
 - Dosing and mixing units for self-colouring or for the addition of additives and regrind
1. Hopper loader for automatic machine feeding
 2. Day bin
 3. Debagging station
 4. Mixing valve
 5. MINICOLOR V, volumetric additive dosing unit
 6. MINICOLOR G, gravimetric additive dosing unit
 7. GRAVICOLOR, gravimetric dosing and mixing unit
 8. LUXOR HD, hot air dryer
 9. LUXOR CA, compressed air dryer
 10. LUXOR, dry-air dryer
 11. Blower station
 12. Central blower station with filter



LUXOR HD

HOT AIR DRYERS



Efficient, accurate material drying is a crucial element in the processing of high grade engineering plastics to ensure impeccable product quality. Cost effective, reliable and easy to use, LUXOR dryers are available ex stock with specifications to suit most applications. They can be quickly and easily installed on site, without specialist assistance. LUXOR units are designed and built to motan's high engineering and performance standards.

LUXOR HD

Optimal and constant production conditions are essential for high product quality and efficient production. motan's range of LUXOR HD hot air dryers offer the most effective way of conditioning slightly hygroscopic plastic granules for processing and removing surface moisture. With pre-heated material, the important production parameters are under control.

motan's fully-insulated LUXOR HD hot air dryers cover a performance range from 7 to 90 kg/h. The dryers can be mounted directly on the throat of the processing machine or on a support frame beside the machine.

All models have a microprocessor-controlled temperature regulator and are equipped with a safety thermostat to prevent overheating of materials.

The use of corrosion-resistant materials ensures a long lifetime and avoids contamination of the plastic granules.

Economy

Pre-heated material increases the efficiency of the processing machine, and thus productivity, while simultaneously decreasing energy costs. Fully insulated and equipped with a specially designed air diffuser, the LUXOR hot air dryers warm up the plastic granules efficiently and with low energy consumption.

Surface moisture is removed reliably. This minimises rejects and guarantees a constantly high product quality. At the same time, the LUXOR hot air dryer requires very little maintenance.

YOUR BENEFITS

- Fully-insulated drying bin
 - lowest energy consumption
 - Constant material temperatures
 - increase the throughput at the processing machine
 - save energy during plasticising
 - No damage caused by surface moisture
-

LUXOR CA

COMPRESSED AIR DRYERS



LUXOR CA

Efficient, accurate material drying is a crucial element in the processing of engineering plastics to ensure impeccable product quality.

motan's fully-insulated LUXOR CA compressed air dryers provide a cost-effective solution for highly efficient continuous drying of all types of plastic granulate with material throughputs up to 25 kg/h. Dryers can be mounted directly on the throat of the processing machine or on an adjacent support frame.

The LUXOR CA dryer takes factory supplied compressed air which is expanded to atmospheric pressure. This produces dry process air with a very low dew-point which is then heated to the required drying temperature. No desiccant is required.

All models are equipped with thermostat and low-air-flow safety switch to prevent overheating of material. The hinged lid on each drying bin provides easy access and has a flange for fitting a motan hopper loader for automatic material conveying.

YOUR BENEFITS

- Reliability and efficiency
 - correct air quantity setting and display of decompressed air
 - the air quantity is infinitely variable to suit the material type and throughput
- Fully-insulated cylindrical drying bin
 - low energy consumption and uniform drying
- Lightweight
 - for easy mounting on machine
- Operational safety
 - flow monitoring of the process air
 - separate safety thermostat
 - heater cool-down sequence when dryer is switched off
 - large alarm beacon
- Flexibility
 - drying temperatures up to 180°C
 - can dry all types of free-flowing plastic granulate
- Hinged lid with flange for hopper loader
 - for easy clean-up and material conveying
- Proven control
 - simple operation
 - accurate temperature control
- Options available:
 - accessories for improving the quality of the compressed air and lowering the dew point
 - Venturi loader METRO VL

LUXOR MDS

MICRO DRYING SYSTEM

LUXOR MDS



LUXOR MDS

Injection moulders making very small parts are faced with the unique challenge of being able to convey and dry just the right amount of material for their process. Operating in extremely critical production conditions, these smaller throughputs can present considerable problems. It is important to scale the drying and conveying to that of the moulding machine.

With the LUXOR MDS micro drying system mainly micro pellets are processed. It comprises a modular set of correctly sized drying and conveying equipment helping moulders to meet the small tolerances without waste or contamination.

The same motan quality that the industry has come to expect applies to the LUXOR MDS micro drying system. All parts in contact with material are made of wear-resistant materials such as stainless steel, glass and hardened aluminium.

The LUXOR MDS micro drying system is designed to ensure optimal conditioning of the material to be processed.

- Constant and stable conditions in the entire drying hopper are an essential prerequisite. Therefore, the complete drying hopper right down to the material discharge is heat insulated and has a double glazed wall construction.
- The cleverly designed air diffuser provides uniform distribution of the dry air ensuring that even material at the material bin outlet is kept at a constant temperature and dry.

Combined conveying and drying process

Two methods of filling the drying bin are possible.

- The dryer is filled reliably and automatically with a micro Venturi loader specifically developed for the micro dryer.
- For manual filling there is a specially designed manual filling bin for convenient transport of the material. It delivers the material to the drying bin, ensuring that the material level in the drying zone is always kept constant.

Drying hopper with manual filling option



Drying hopper with venturi loader option



Optimal process air – the right temperature and quality

- Due to the wide temperature range (40 - 180°C) the LUXOR MDS micro drying system can be used for many different materials.
- Prefilter and membrane dryer clean the compressed air and lower the dew-point. This prevents contamination of high-quality materials and provides optimum drying conditions.

Designed for clean rooms

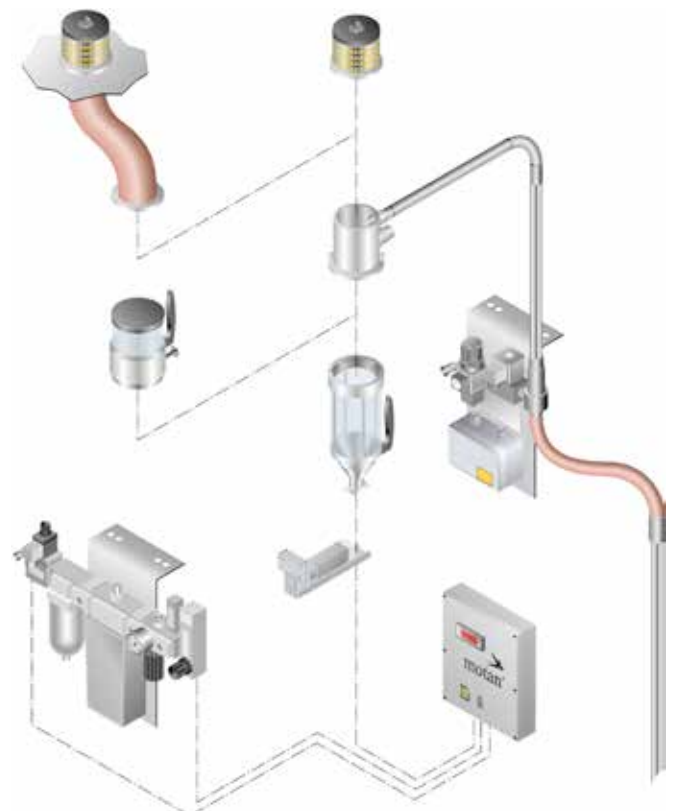
- The membrane dryer is emission-free.
- Whether the micro dryer is filled automatically or manually, the exhaust air is always filtered. A separate clean room filter is available as an option.

Simple handling and user friendly

- Quick and easy access to all parts for cleaning. No tools required.
- A special sliding adaptor enables very rapid installation of the drying hopper to the machine.
- Grips facilitate handling.
- All elements are modular and interchangeable.

Throughput-related material drying

- The available volume of the hopper can be adapted to accommodate differing material throughputs. For this purpose, the LUXOR MDS micro drying system includes a set of different inserts.



LUXOR

DRY AIR DRYERS

LUXOR 80 with 3 x 60 l bins



MDE 40 with 1 x 60 l bin



LUXOR 50 with 1 x 100 l bins



LUXOR

Technical plastics are hygroscopic. They absorb humidity from ambient air which influences the melt in a negative way and massively affects product quality. Thanks to constant pre-drying to a defined residual moisture with a motan LUXOR dry air dryer, production risks may be eliminated and high quality assurance is achieved. No rejects due to humidity.

Reliability

Plastics processors in every corner of the world rely on motan's robust, efficient design to provide them with unrivaled reliability. The use of commercially available microprocessor controls and readily available system components, ensure that motan products are the most reliable.

LUXOR 120 with 1 x 400 l bin



LUXOR 160 with 3 x 150 l bin



Dry-air generator

All models have twin high capacity desiccant beds to ensure continuous drying. The desiccant cartridges are made of stainless steel. The models MDE 40, LUXOR 50 and 80 are fitted with a single blower for production of dry air for both the process and regeneration circuits. The LUXOR 120 and 160 models have separate process and regeneration blowers. All models dry in a closed loop mode. All dryers operate with an extremely low dew point. A dew-point indicator, aftercooler and high temperature version are standard options available across most of the range.

Efficiency and flexibility

motan's LUXOR dryers operate at maximum efficiency and with minimum operating maintenance. The opportunity to have multiple material bins connected to one dry-air generator provides our customers with maximum flexibility and no interruption to production. Drying can continue while material is changed in any one bin, minimising loss of valuable production time during material changes.

Control/operation

Simplest handling by modern microprocessor controls. Indicators on the operating panel show the status of the dryer. Each drying bin temperature can be individually set at the bin.

LUXOR DRYING BINS



Drying bins

Drying bins are fully insulated with individual heaters and temperature setting controls. The cylindrical shape ensures uniform drying. Bins are available in a range of volume sizes, from 15 to 600 litres. Larger bins have an inspection door for ease of access and all are fitted with a sight glass. Bins can be machine mounted up to 60 litres size, or floor mounted on mobile frames. A flange for mounting a motan hopper loader is provided on all bins.

Modularity

All units, dryers and bins are mounted on castors for ease of movement. The combination and quantity of bins installed to each dryer can be adapted at a later stage as operational requirements change. A small footprint means that LUXOR dryers and bins occupy minimal space on the factory floor.

Drying bin combinations

No. of max. connectable drying bins at following sizes:

Type	15 l*	30 l*	60 l*	100 l	150 l	250 l**	400 l**	600 l**
MDE 40	2	2	1					
LUXOR 50	3	3	2	1	1	–	–	–
LUXOR 80	–	–	3	2	2	1	–	–
LUXOR 120	–	–	–	3	2	1	1	–
LUXOR 160	–	–	–	–	3	2	1	1

* Also available as machine mountable-version
 ** Also available in high temperature version (180°C)
 Other combinations on request

YOUR BENEFITS

Cost savings through

- simultaneous drying of different materials
- low energy consumption
- long service intervals
- operation without compressed air
- low space requirement on factory floor
- easy mobility providing flexibility of use

- individual bin temperature control
- expandability of the units

Production reliability through

- microprocessor control* and individual bin heating with temperature control

- continuous drying with two high-efficiency desiccant beds
 - proven, modular design
 - easy to use
 - integrated weekly timer*
 - dryer design to IEC and VDE standards
- * Excluding MDE 40.

TECHNICAL DATA

Technical data LUXOR HD

Dry-air dryer Type LUXOR HD	LHD 30	LHD 60	LHD 150
Drying bin volume (l)	30	60	150
Air flow rate (m³/h)	25	50	100
Max. temperature (°C)	130	130	130
Heating (kW)	1.5	1.5	4.5
Blower (kW)	0.088	0.24	0.35
Connected load (kW)	2.0	2.0	5.0
Power supply (V/Hz)	1/N/PE 230/50		
Dimensions (mm)			
H	750	936	1190
B	525	600	627
Ø d	342	416	537
Weight approx. (kg)	24	30	56
Colour RAL (orange/grey)	2011/7040	2011/7040	2011/7040

Performance data

Material	Drying temp. (°C)	Drying time (h)	LHD 30 (kg/h)*	LHD 60 (kg/h)*	LHD 150 (kg/h)*
ABS	80	2 - 3	8	16	39
CA	75	2 - 3	8	16	39
PC	120	2 - 3	8	16	39
PE	90	1 - 2	19	38	75
PET-G	65	2 - 3	11	23	45
PI	130	3	7	13	33
PMMA	80	3	7	13	33
POM	110	2 - 5	8	16	39
PP	100	1 - 2	19	38	75
PS	80	1 - 2	23	45	91
PVC	70	1 - 2	13	26	65
SAN	80	2 - 3	8	16	39

* The throughputs in the table refer to the removal of surface moisture



LUXOR

TECHNICAL DATA

Technical data LUXOR MDS

Compressed air dryer Type LUXOR Micro Drying System		
Drying hopper volume (l)	0.75	1.5
Air flow rate (m³/h)	1.5 - 2	1.5 - 2
Compressed air oil and water-free (bar)	3 - 7	3 - 7
Temperature range (°C)	40 - 180	40 - 180
Power supply (V/Hz)	1/N/PE 230/50	1/N/PE 230/50
Dimensions (mm)		
H1 Height drying hopper	259	419
H2 Height manual filling hopper	151	151
H3 Height Venturi Loader	140	140
H4 Exhaust air filter	100	100
B1 Width manual filling hopper	186	186
Ø d Material inlet Venturi loader	20	20
Volume manual filling hopper (l)	0.5	0.5
Volume Venturi Loader (l)	0.25	0.25
Weight approx. (kg)	5	6
Colour RAL	7040	7040

LUXOR MDS drying hoppers



Technical data LUXOR CA

Compressed air dryer Type LUXOR CA				
	LCA 8	LCA 15	LCA 30	LCA 60
Drying bin volume (l)	8	15	30	60
Air flow rate (m³/h)	3 - 8	4 - 12	6 - 15	10 - 25
Compressed air oil and water-free (bar)	5 - 7	5 - 7	5 - 7	5 - 7
Max. temperature (°C)	180	180	180	180
Power supply (V/Hz)	230/50	230/50	230/50	230/50
Dimensions (mm)				
H	607	615	750	937
B	392	405	470	544
Ø d	259	277	342	415
Weight approx. (kg)	18	20	25	35
Colour RAL (orange/grey)	2011/7040	2011/7040	2011/7040	2011/7040

LUXOR CA



Performance data

Material	Drying temperature (°C)	Residence time (h)	LUXOR MDS 0.75 l throughput (kg/h)	LUXOR MDS 1.5 l throughput (kg/h)	LUXOR CA 8 throughput (kg/h)	LUXOR CA 15 throughput (kg/h)	LUXOR CA 30 throughput (kg/h)	LUXOR CA 60 throughput (kg/h)
ABS	80	2 - 3	0.200	0.400	2.5	4	8	16
EPDM	80	4	0.150	0.300	2	3	5	10
PA 6/66	80	4 - 6	0.125	0.250	1.5	2.5	4.5	9
PA 6.10/11/12	80	4 - 6	0.100	0.200	1.5	2	4	8
PAEK	160	3 - 4	0.175	0.350	2	3.5	6.5	13
PBT	110	3 - 4	0.200	0.400	2.5	4	8.5	16
PC	120	2 - 3	0.250	0.500	2.5	5	9	18
PE *	90	2	0.250	0.500	2.5	5	9	18
PE black	90	3	0.200	0.400	2	4	7	14
PEEK	150	3	0.225	0.450	2.5	4.5	8	16
PEI	150	3 - 4	0.150	0.300	2	3	6	12
PES	150	4	0.175	0.350	2	3.5	6.5	13
PET (preforms)	175	4 - 6	0.100	0.200	1.5	2	4	8
PET (inj. moulding)	120	4	0.100	0.200	1.5	2	4	8
PET-G	65	4 - 6	0.100	0.200	1.5	2	4	8
PMMA	80	2 - 3	0.225	0.450	2.5	4.5	9	18
POM	110	2 - 3	0.275	0.550	3	5.5	10	20
PP*	100	2 - 3	0.200	0.400	2	4	7	14
PPE	110	2 - 3	0.225	0.450	2.5	4.5	8	16
PPS	140	3 - 4	0.200	0.400	2	4	7	14
PS	80	2	0.275	0.550	3	5.5	10	20
PSU	130	3 - 4	0.200	0.400	2.5	4	7	15
PVC	70	1 - 2	0.400	0.800	4	8	14	26
SAN	80	2 - 3	0.225	0.450	3	4.5	8.5	16
SB	80	2	0.275	0.550	3	5.5	10	20
TPU (PUR)	90	2 - 3	0.200	0.400	2.5	4	7.5	15

* Only filled/reinforced materials are hygroscopic

LUXOR

TECHNICAL DATA

Technical data					
Dry air generator Type LUXOR ...	MDE 40	LUXOR 50	LUXOR 80	LUXOR 120	LUXOR 160
Dry air flow rate (m³/h)	40	50	80	120	160
Max. number of drying bins	2	3	3	3	3
Connected load (kW) *	1.3	1.9	2.4	4.3	5.4
Power supply (V/Hz)	1/N/PE 230/50	3/N/PE 400/230/50	3/N/PE 400/230/50	3/N/PE 400/230/50	3/N/PE 400/230/50
Weight approx. (kg)	60	95	105	190	206
Colour RAL (orange/grey)	2011/704	2011/7040	2011/7040	2011/7040	2011/7040

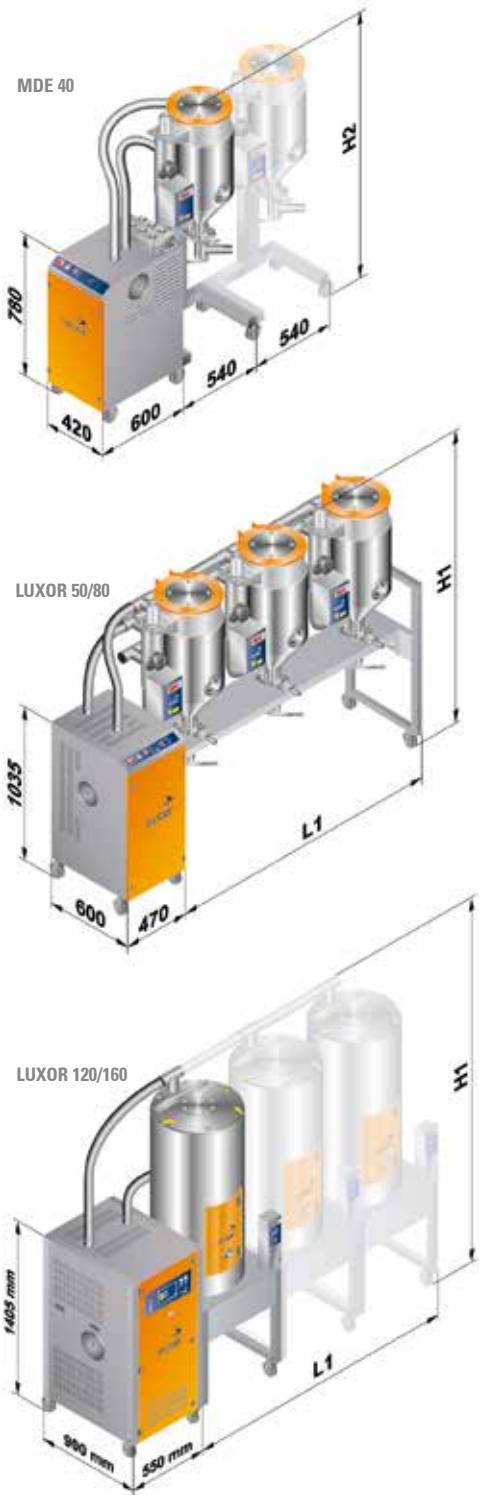
* Excluding drying bins and hopper loaders

Technical data								
Drying bins	15 l	30 l	60 l	100 l	150 l	250 l	400 l	600 l
Drying bin volume (l)	15	30	60	100	150	250	400	600
Temperature range (°C)	60 - 140				60 - 180*			
Connected load (kW) *	1.5	1.5	1.5	2.5	2.5	4	6	9
Power supply (V/Hz)	1/N/PE 230/50				3/N/PE 400/50			
Dimensions (mm)								
L1 (1 drying bin)	605	605	605	580	580	750	875	875
L2 (2 drying bins)	1160	1160	1160	1160	1160	1500	-	-
L3 (3 drying bins)	1700	1700	1700	1740	1740	-	-	-
H1	1175	1310	1500	1705	2040	2050	2450	2450
H2	1280	1415	1600	-	-	-	-	-
Max. depth	600	600	600	760	760	900	900	900
Weight approx. (kg)	16	19	25	75	87	110	165	190
Colour RAL (orange/grey)	2011/7040							

* An after-cooler is required for temperatures above 140°C

Performance data										
Material	Drying temp. (°C)	Residence time (h)	Performance range* Volume of drying bin							
			15 l (kg/h)	30 l (kg/h)	60 l (kg/h)	100 l (kg/h)	150 l (kg/h)	250 l (kg/h)	400 l** (kg/h)	600 l*** (kg/h)
ABS	80	2-3	4	8	15	25	38	63	101	123
CA	75	2-3	3	6	11	19	28	46	74	89
CAB	75	2-3	3	5	10	17	25	42	67	80
CP	75	4	2	5	10	16	24	40	64	76
EPDM	80	4	2	4	8	13	20	33	53	64
PA 6/66	75	4-6	2	4	8	14	20	34	54	84
PA 6.10.11.12	80	4-6	2	4	8	13	20	33	52	73
PAEK	160	3-4	3	6	12	20	29	49	78	114
PBT	110	3-4	4	8	15	26	39	64	103	123
PC	120	2-3	4	8	15	26	39	64	103	123
PE	90	2-3	2	5	9	15	23	38	61	73
PE black	90	3	2	4	8	14	21	35	56	67
PEEK	150	3	4	8	15	26	39	64	103	123
PEI	150	3-4	3	6	12	20	29	49	79	123
PES	150	4	3	6	12	21	31	51	82	114
PET (preforms)	175	4-6	2	4	8	13	20	33	53	64
PET (inj. mould.)	120	4	3	5	8	15	23	38	60	95
PET-G	65	4-6	2	4	8	13	20	33	53	64
PMMA	80	2-3	4	7	14	24	36	60	95	114
POM	110	2-3	4	8	17	28	42	69	111	133
PP	100	2-3	3	6	12	20	29	49	78	94
PPE	110	2-3	4	8	15	26	38	64	102	123
PPS	140	3-4	4	7	14	23	35	58	93	123
PS	80	2	5	9	18	30	46	76	121	146
PSU	130	3-4	4	8	15	25	38	63	100	133
PVC	70	1-2	5	9	18	30	46	76	121	146
SAN	80	2-3	4	8	16	26	39	65	104	133
SB	80	2	4	8	17	28	42	69	111	133
TPU (PUR)	90	2-3	3	6	11	19	28	46	74	89

* Varies with bulk density, residence time and initial moisture content
 ** Material throughput per hour is lower when connected to a LUXOR 120
 *** Material throughput per hour is limited by the dry air flow rate of the LUXOR 160
 Subject to technical changes



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