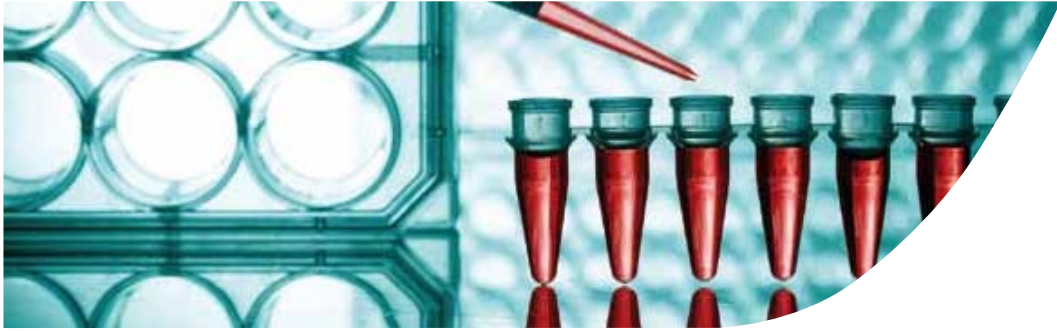
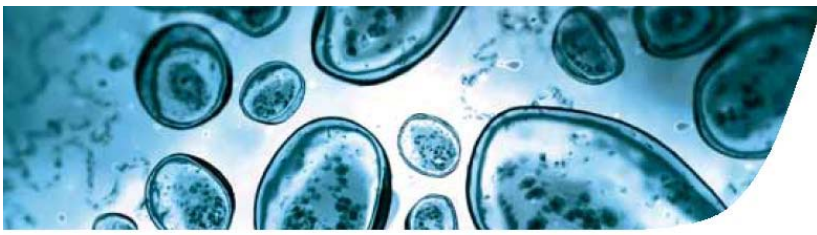


DEEP FREEZERS





ULTRA LOW TEMPERATURE DEEP FREEZERS

Desmon offers a wide range of upright or chest, -45°C and -86°C deep freezers made in EU with capacities from 175 to 100 VIP (Vaccum Insulated Panels) thermoinsulation, reliable cascade cooling system and stainless steel interior.

The equipment shows a benchmark performance in terms of temperature homogeneity, stability and precision (for example, homogeneity $\pm 3^{\circ}\text{C}$ at $-80^{\circ}\text{C}/-112^{\circ}\text{F}$) in accordance with the EU norm EN60068-3-11 and perfect sample preservation under any circumstances.

The Intellidiag technology is the perfect control tool. Constant monitoring of a freezer's parameters will allow detection any critical drift in its performance and enable prediction and prevention of any potential risk to the samples. In addition, the user has the opportunity to remotely control a deep freezer and be automatically informed of any kind of incident (door open, etc..

We always try to keep sample storage cost as low as possible and this is why Desmon offers the largest storage capacity (up to 72000 2ml cryo vials) on a minimal footprint.



BM

A UNIQUE TECHNOLOGY : Maximum protection of the samples

Based on the well-known and proven double stage compressors cascade technology, the efficient pipe architecture of the cooling system combined with a high refrigerant velocity allows extreme simplification of the refrigeration system. This significantly reduces the risk of blockages and therefore the need for regular and expansive maintenance.



A UNIQUE CONCEPTION: Maximum protection of the cooling system

- Oil separator and depressurization tank free (reduces maintenance)
- Common refrigerant: R417A and R508A (CFC and HCFC free)
- Low operating pressure / Very limited pressure drop
- Low return temperature of the gas (<0°C) into the compressors keeping them operating at low temperature (extension of the compressor operating life)
- Maintenance can be made by non «cascade specialist» technician

THE BoSS SYSTEM : Maximum protection of the samples

The samples protection must be efficient in any circumstance, even in unlikely case of low voltage/electronic system outage. The BoSS system compensates for that potential issue and will engage the compressors permanently, maintaining a permanent deep freeze production.

- Preservation of the samples
- 30 hours regulation on batteries; then direct connection to the power source (110V or 220/230V) of the compressors
- No emergency maintenance required / easy problem identification for the service engineer

VACUM PANEL INSULATION (VIP)

- 15% reduction of the power consumption
- 22% improvement of the temperature rise in case of power failure
- Larger storage capacity with the same foot print

UNRIVALLED performance:

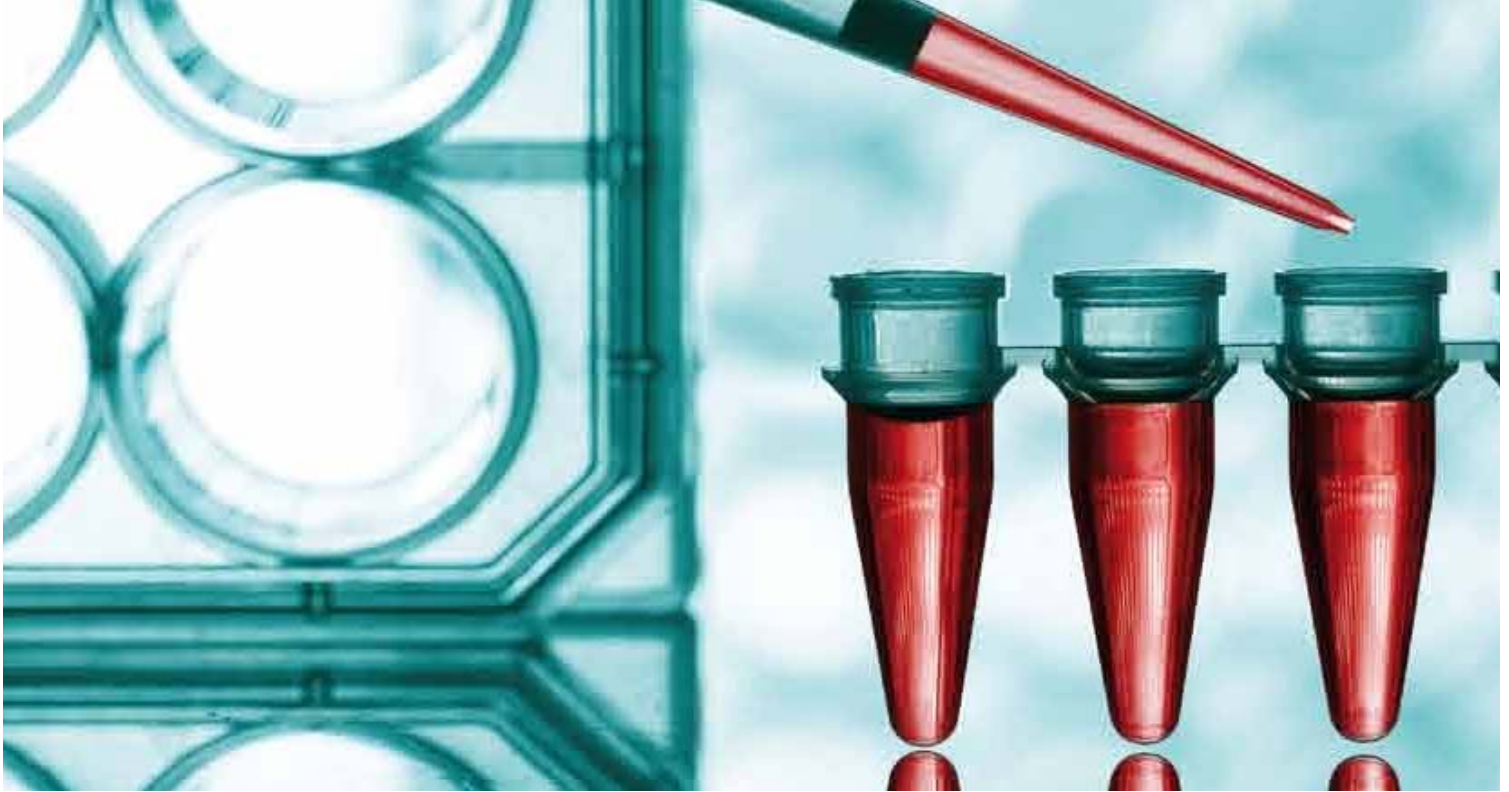
- Excellent homogeneity < +/-3°C at -80°C/-112°F and exceptional stability +/-1°C at -80°C/-112°F
- Fast cooling: from 22°C to -81°C (71°F to -113°F) in 4h (690L)
- Fast set temperature recovery after door opening
- Sustain ambient temperature (environment) up to 35°C/95°F

SPECIFICATIONS

- Maximised storage capacity vs footprint (up to 72000 cryo-tubes / 1.25m²)
- Door way access (h: 2m x w: 0,8m)
- Sound level <53dB



BM controller

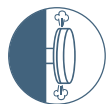


SAMPLES ALWAYS UNDER OBSERVATION

- Audible and visible high and low temperature alarm
- Door open, power failure and blocked condenser alarm
- Supplied with alarm battery back-up

REGULATION

- Dual digital display of the set and actual temperature
- Temperature electronic regulator assisted by industrial automation
- Pt100 ohm sensor for the regulation and display



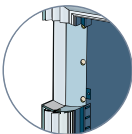
Heated decompression valve for easy opening (pressure equaliser)

Heated silicone 3 lips seal limits frost generation

Insulated inner door, color coded

Stainless steel inner chamber with round corners

Adjustable stainless steel lining and fitting



Insulation by Vacumm insulated Panels (VIP)

Door key lock

Front access washable condenser filter

4 castors and 2 level adaptors



BMS

BIO MEMORY STAR

Based on the Bio Memory, Desmon has developed and integrated the advanced INTELLIDIAG predictive maintenance system which will provide over many years the highest safety for your samples.



PREDICTIVE MAINTENANCE AND REMOTE CONTROL

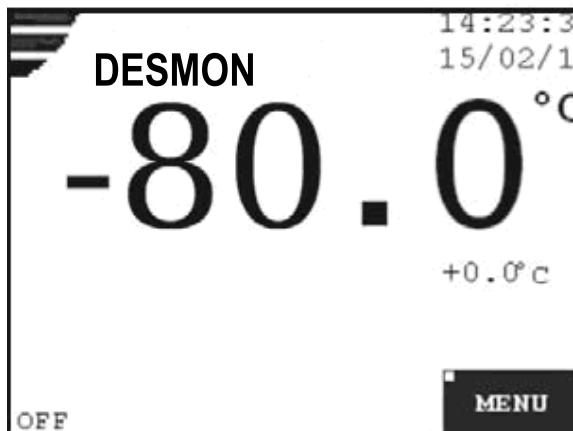
By monitoring the critical parameters (compressor's activity, pressure etc...), INTELLIDIAG detect and analyse the operation drifts of the freezer and make possible predictive diagnostics to prevent potential failure or malfunction.

Every BMS deep freezer has its own fix IP address which allows remote control and communication when connected by LAN, Ethernet or Internet. In case of alarm or warning message, emails will be sent automatically up to 4 different addresses.

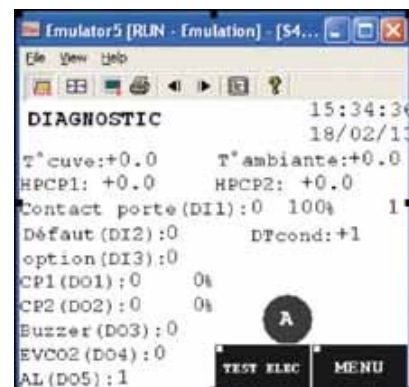
5.7" touch screen enable driving the display of the freezer's information and parameters related to its performance. Short-cut function keys enable quick access to different functions, diagrams, alerts, incidents list, maintenance information and CO2 back-up management (standard on a BMS).

Additions to the BMS spécifications:

- Password protected keyboard
- CO₂ backup
- Ethernet / Internet / LAN port
- Predictive maintenance
- Error message
- Alert message by email



BMS touch screen



Diagnostic display



TECHNICAL SPECIFICATIONS

	Capacity (litre)	External dimensions (H x W x D) mm	Inner dimensions (H x W x D) mm	Max. cryo-tubes capacity	Number of compartments	Net weight (kg)	Power supply
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VERTICAL MODEL

DS-BM/BMS 175	175	1330x875x712,5	620x630x452	12000	2	185	230V/50Hz
DS-BM/BMS 340	340	1280x875x985	716x630x752	24000	2	223	230V/50Hz
DS-BM/BMS 515	515	1640x875x985	1076x630x752	36000	3	267	230V/50Hz
DS-BM/BMS 690	690	1990x875x985	1436x630x752	48000	4	330	230V/50Hz
DS-BM/BMS 1000	1000	1990x1200x985	1436x920x765	72000	4	390	230V/50Hz

BUILT-IN MODEL

DS-BMP/BMSP 175	175	810x1275x680	620x630x452	12000	2	185	230V/50Hz
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CHEST MODEL

DS-BMH 340	340	1032x1380x794	765x716x630	24000	1	233	230V/50Hz
DS-BMH 515	515	1032x1740x794	765x1076x630	36000	1	277	230V/50Hz
DS-BMH 690	690	1032x2100x794	765x1436x630	48000	1	340	230V/50Hz
DS-BMH 1000	1000	1050x2100x1084	765x1436x920	72000	1	430	230V/50Hz

	220V / 50Hz	
	-45°C	-86°C

VERTICAL MODEL

175 litres	DS-BM17545	DS-BM17586
340 litres	DS-BM34045	DS-BM34086
515 litres	DS-BM51545	DS-BM51586
690 litres	DS-BM69045	DS-BM69086
1000 litres	DS-BM100045	DS-BM100082*

BUILT-IN MODEL

175 litres	DS-BMP17545	DS-BMP17586
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	220V / 50Hz	
	-45°C	-86°C

HORIZONTAL MODEL

175 litres	DS-BMH17545	DS-BMH17586
340 litres	DS-BMH34045	DS-BMH34086
515 litres	DS-BMH51545	DS-BMH51586
690 litres	DS-BMH69045	DS-BMH69086
1000 litres	DS-BMH100045	DS-BMH100082*

*Set at -82°C in production

220V/60 110V/ 50-60 Hz available

Water condenser: just add /W to the above references

ACCESSORIES

INTERIOR FITTINGS

Reference	Nb of shelves	Usable height (mm)	Cryoboxes* capacity *133x133x51mm	Deep freezer racks capacity 340/515/690/1000
UPRIGHT MODELS 340/515/690/1000				
Racks with drawers 288x730x343				
BM/EL2T690	2	164	60	4 / 6 / 8 / 12
BM/EL3T690	3	109	60	
BM/EL4T690	4	80	40	
BM/EL5T690	5	63	50	
BM/EL6T690	6	53	60	
Racks with fixed shelves 140x730x343				
BM/EL3E690	3	109	30	8 / 12 / 16 / 24
BM/EL4E690	4	80	20	
BM/EL5E690	5	63	25	
BM/EL6E690	6	54	30	
Racks for microplates 142x740x330				
BM/ELMP690	2	140	160 x 96 well plates	8 / 12 / 16 / 24
Baskets 142x740x330				
BM/TIR	1	330		8 / 12 / 16 / 24
CHEST MODEL 340/515/690				
Upright racks 144x140x737				
BM/12EBV	For cryo-boxes 133x133x51		12	20 / 28 / 40
BM/7EBV	For cryo-boxes 133x133x95		7	
Baskets 340x288x368				
BM/PAN			Bulck	20 / 28 / 40

ADDITIONAL SHELVES

For model 175L	For model 340/515/690L	For model 1000L
BM/ETA1	BM/ETA2	BM/ETA3

OPTIONS

Reference	Description	BM	BMS
Common options			
BM/CRYO1	Cryo-reservoir for DS-BM175, temperature increase delayed by additional +/- 6h	Option	
BM/CRYO2	Cryo-reservoir for DS-BM340, temperature increase delayed by additional +/- 6h	Option	
BM/CRYO3	Cryo-reservoir for DS-BM515, temperature increase delayed by additional +/- 6h	Option	
BM/CRYO4	Cryo-reservoir for DS-BM690, temperature increase delayed by additional +/- 6h	Option	
BM/OPT8	On/off Switch, key lock	Option	Not available
BM/N2	LN ₂ backup system, 1m80 DN10 transfer hose included	Option	On request
BM/CO2	Co ₂ backup system, 3m transfer hose included	Option	Included
Traçability			
BM/OPT2	Pt 100 ohm probe, 3 wires, 4-20 mA (-100°C to +50°C), Rear output on connectors	Option	
BM/OPT3	K thermocouple probe (-100°C to +50°C), Rear output on connectors	Option	
BM/OPT4	Pt 100 ohm probe, 3 wires (-100°C to +50°C), Rear DIN connector	Option	
BM/OPT5	Probe with 3 meters cable for external calibration	Option	
BM/OPT6	Certified temperature probe	Option	
BM/OPT9	RS485 port for data transfer	Option	
BM/OPT7	0°C to -100°C circular chart recorder, 1 run for 7 days	Option	
BM/OPT11	Cable entry port with gland on decompression valve	Option	
BMS/WIFI	WIFI	Not available	Option
Qualification			
BM/QP	PQ : Performance qualification protocol	Option	
BM/QIQO	IQ/OQ : Installation and operational protocol manual	Option	

These equipments are produced on an ISO9001 certified site.

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