



# Pendant systems EMALED with DIN components





# Pendant systems

**Pendant systems are used to supply operating rooms with medical gases, electricity and data connections.**

The supply comes from the ceiling, so that the floor remains free of cables and hoses. Pendant systems make it easier to clean the rooms, make the supply more flexible and prevent accidents.

At the mounting location of the pendant system, the supply lines are mounted on an interface plate and enable fast service.

The pendant system uses hoses and flexible cables to allow accurate positioning of the connectors.

Pendant systems are mainly used in the following areas:

- In operating rooms with specific fittings for anesthesia or surgery
- Endoscopy
- Treatment rooms



The EMA-LED GmbH  
offers 2 varieties of a selection of pendant systems

Standard variant

According to customer  
requirements

The standard versions are based on our many years of experience with pendant systems and the wishes of our customers.  
Standard variants are based on a height of the raw ceiling of up to 4000mm and a false ceiling of approx. 3000mm.

The built-in components of the pendant are available in the 3 standards.

- BS
- DIN
- AFNOR

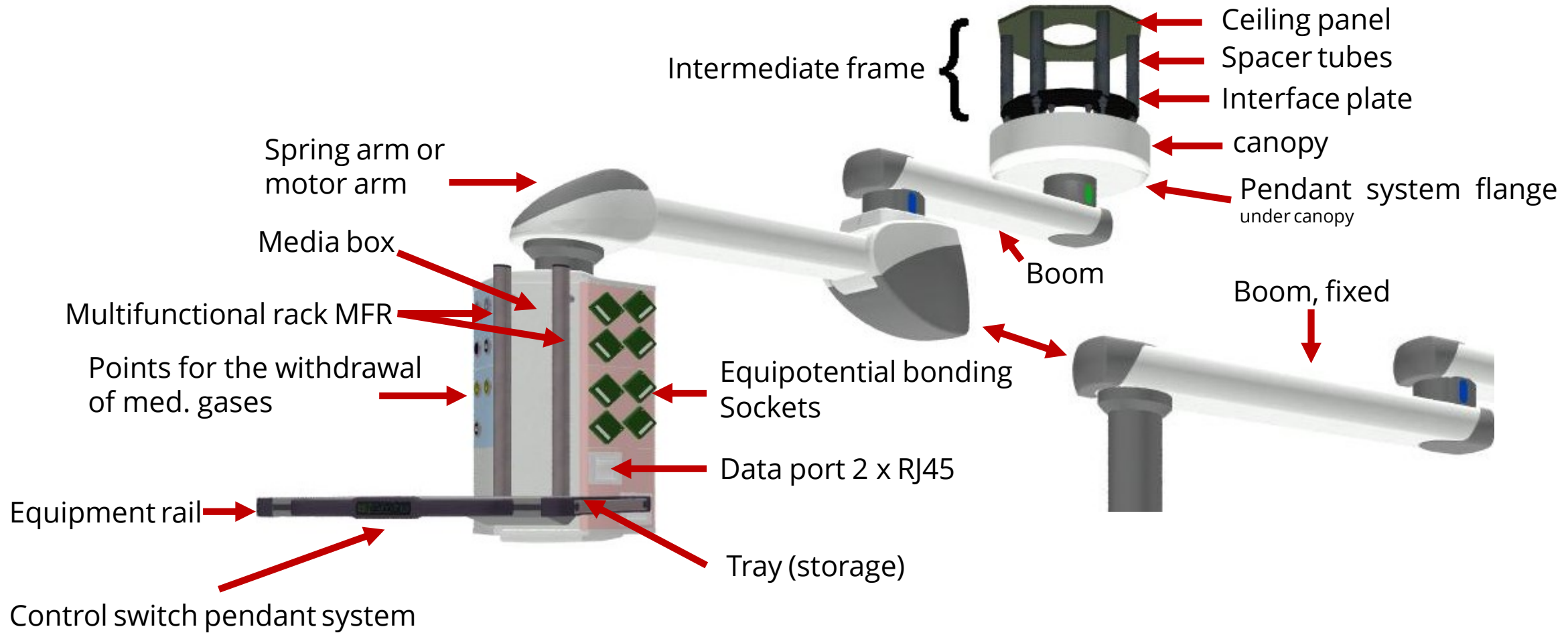
The standard configuration allows a shorter delivery time and an attractive price. Changes to the configuration are only possible in a limited range.

The customer-oriented planning of pendant systems enables the implementation of all customer requirements, provided they comply with national regulations.

It is possible to use payloads of up to 1000 kg and lift weights of up to 250 kg with a motor arm.  
Gas outlets and sockets are available in all international standards.

It is possible to specify the manufacturers of the modules and also to provide material.  
The delivery time for these products is about 12 weeks after clarification of all technical details.

# Structure of a pendant system





## Definition

Intermediate frame	Similar to the surgical lights.
Canopy	Similar to the surgical lights.
Boom	For expansion of the range as well as better positioning of the pendant systems. A boom is not strictly necessary.
Boom, fixed	Most simple boom type without elevation.
Spring arm	Most simple height-adjustable possibility for pendant systems. Also including cases when load is changed, spring arms must be set by a technician. The spring assemblies in the spring arm must thereby be set. A spring arm is not appropriate for alternating loads.
Motor arm	An electric motor is used for lifting and releasing, thus making a precise setting possible, regardless of the load, up to the max. weight (per pendant systems by EMALED, approx. 115 kg).



## Definition

Friction brakes	A purely mechanical brake with brake screws, the same as on the surgical lights.
Air-brake	The brake runs on compressed air and thus requires a compressed air connector on the pendant systems.
E-brake	The e-brake is operated on electric power and is almost wear-free.
CGU	Central Gas Unit. The medical gases are fed into a pipe network system in the hospital and thus taken into all areas where they are needed.
Points for the withdrawal of med. gases	The points of withdrawal are standardised plug outlets which are coded differently and thus make the medical gases usable with appropriate plugs. The common medical gases are: Oxygen, compressed air, nitrous oxide, vacuum, CO <sub>2</sub> . Other gases are also partially present, and not all of the listed gases are always present.
Equipment rail	The standardised equipment rail is used for the fastening of accessories on the pendant systems.

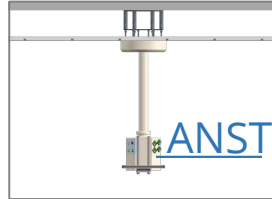


## Definition

Multifunctional rack MFRA	Clamping system for accessories and trays on the pendant system.
Tray	Storage for mounting on the MFR - height-adjustable (with tools). Each tray is loadable with max. 50 kg, up to the permissible total load of the pendant system.
Data sockets	Connection sockets for networks
Equipotential bonding	Possibility to connect all electrical devices in the operation room with each other, in order to avoid any dangerous voltage between devices in case of error of a device.
Air motor	Connection for tools operated on compressed air in the operation room.
NGA or AGFS	Suction of anaesthetic gases in anaesthesia.

## Operating Room

### Anesthesia



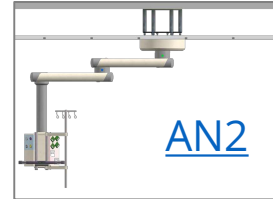
ANST

Basic



AN1

Basic



AN2

Basic



AN3

Performance



AN4

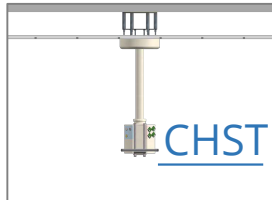
Performance



AN5

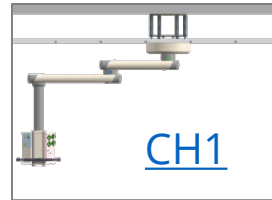
Premium

### General Surgery



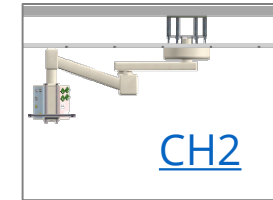
CHST

Basic



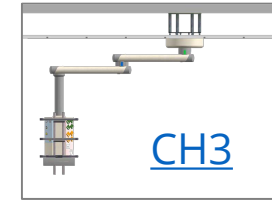
CH1

Basic



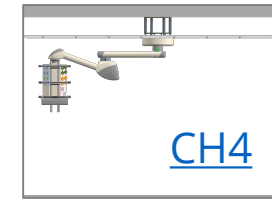
CH2

Performance



CH3

Performance

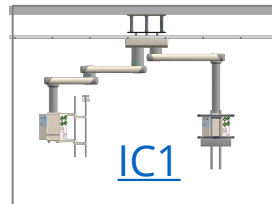


CH4

Premium

## Intensive Care Unit

### Intensive Care



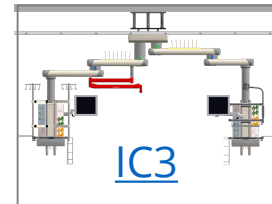
IC1

Basic



IC2

Performance



IC3

Premium





# Recommended service components

Medical application	Number of service components											
	O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
Surgery min	1	1		1					4	4	1	2
Surgery standard	1	2		2				1	8	8	1	2
Endoscopy min	1	1		1	1				6	6	1	2
Endoscopy standard		2		2	1			1	6	6	1	2
Anesthesia min	1	1	1	1			1		6	6	1	2
Anesthesia standard	2	2	1	2			1		10	10	2	2
Resuscitation/Monitoring min	1	1	(1P)	1			(1P)		6	6	1	1
Resuscitation/Monitoring standard	2	2	(1P)	2			(1P)		10	10	2	2
Infusion min	1	1		1					6	6	1	2
Infusion standard	1	1		1					8	8	2	2

P = Project options

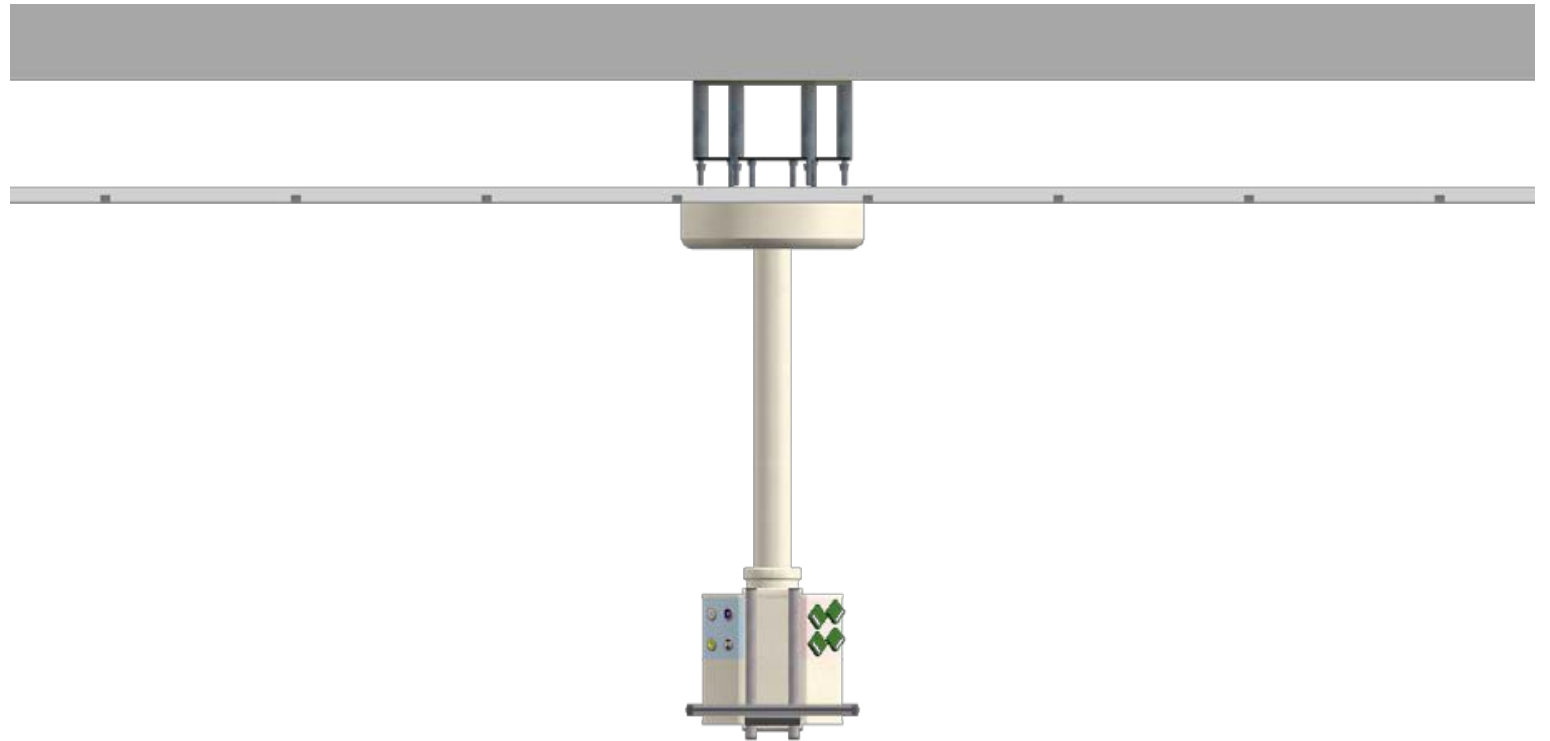
## Configuration proposal Anesthesia Basic ANST

### Configuration description:

OndaScope400  
with Service Head 400  
1 x shelf 520 mm

1. Brake system: friktion
2. Action space\*: ---
3. Weights and pay loads:
  - remaining net pay load: 222 kg
  - max. pendant pay load: 250 kg
  - vertical force as configured: 3317 N
4. Remaining diameter: 70 %

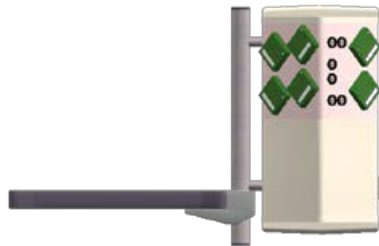
\* reference: centre of main bearing to centre of shelf





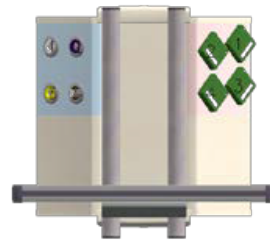
# Configuration proposal Anesthesia Basic ANST

Side view right



Front view

O2 1  
N2O 2  
Air 4 3  
VAC 4



Green 1  
Green 2  
Green 3  
Green 4

Side view left



Back

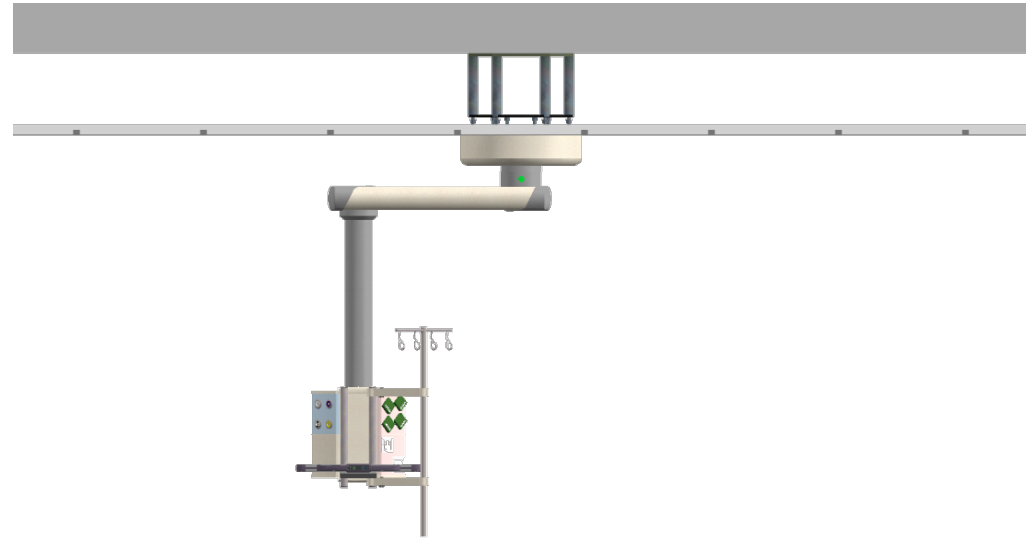
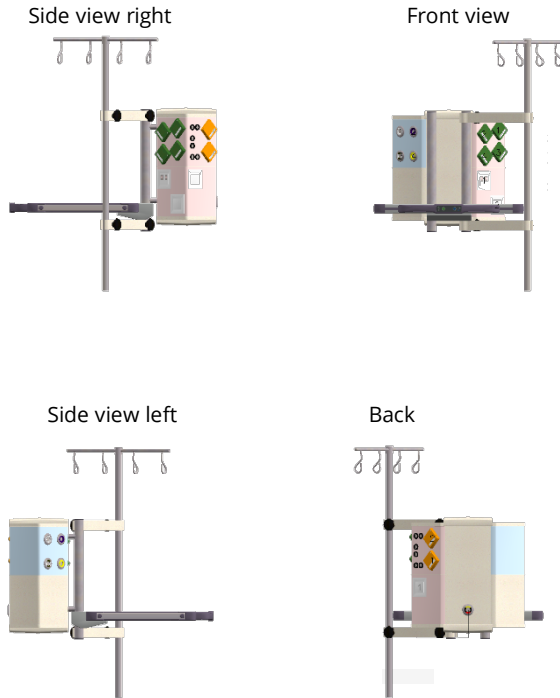
Green 1  
Green 2



AGSS

Number of service components											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1	1	1	1			1		6	6		2
DIN Standard											

# Configuration proposal Anesthesia (AN1)



Configuration description:  
 MediBoom®Air 800 with Service Head 400  
 1 x Shelf 520 mm, 1 x IV pole

Brake system: Pneumatic

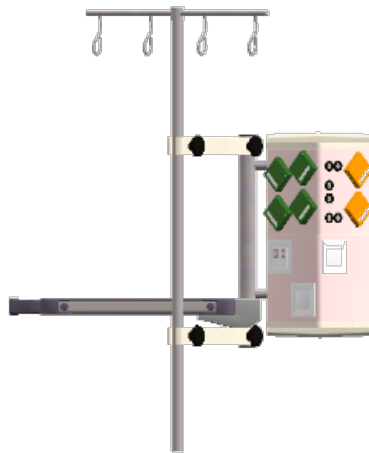
1. Action space\*: 2,400 mm
2. Weights and Pay Loads  
 Remaining Net Pay Load: 377 kg  
 Max. pendant pay load: 420 kg  
 Vertical force as configured: 5111 N
3. Remaining Diameter: 66 %

Number of service components											
O <sub>2</sub>	Air 4/5	₂O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1	1	1	1			1		6	6	1	2
Greggersen Forano DIN Standard								PEHA			

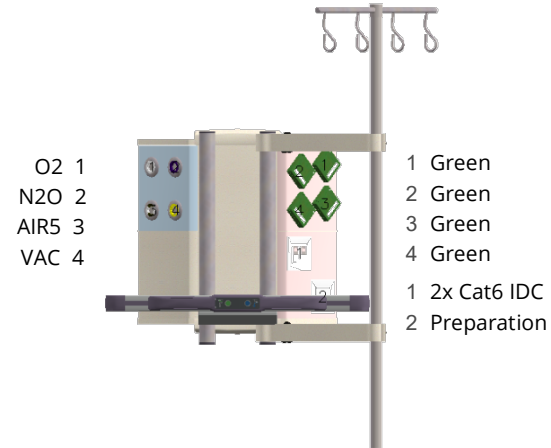
\* reference: centre of main bearing to centre of shelf

# Configuration proposal Anesthesia (AN1)

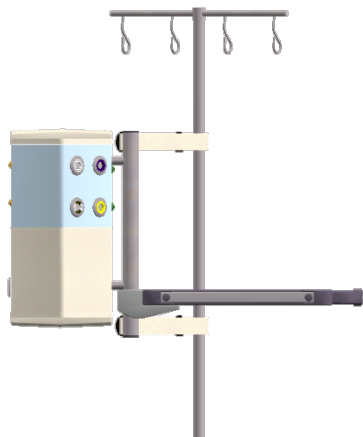
Side view right



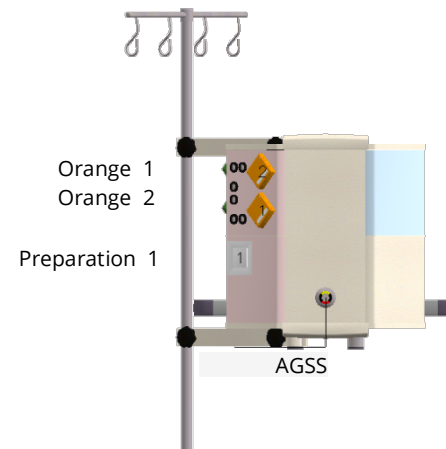
Front view



Side view left

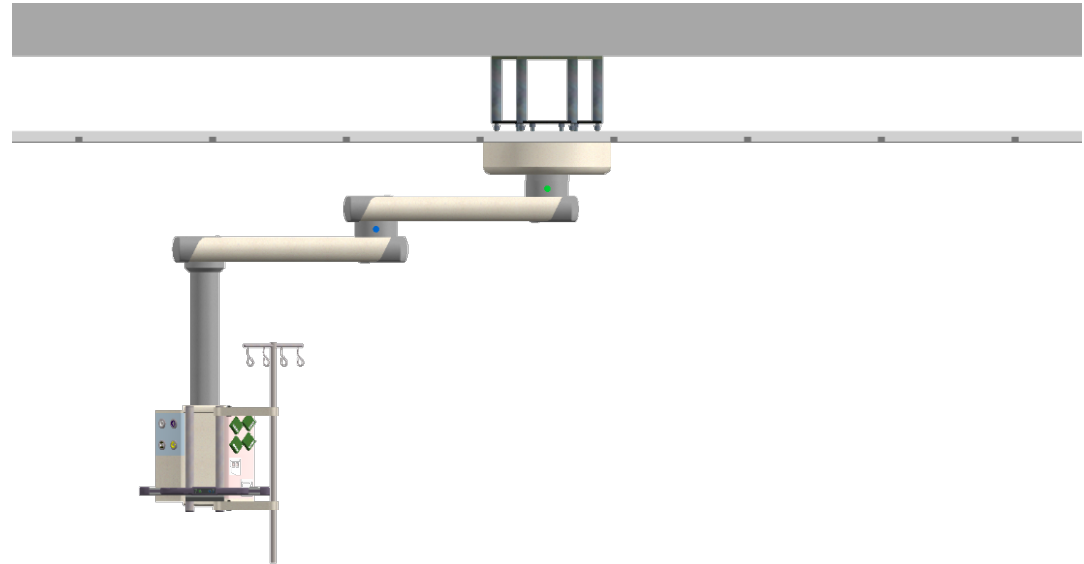
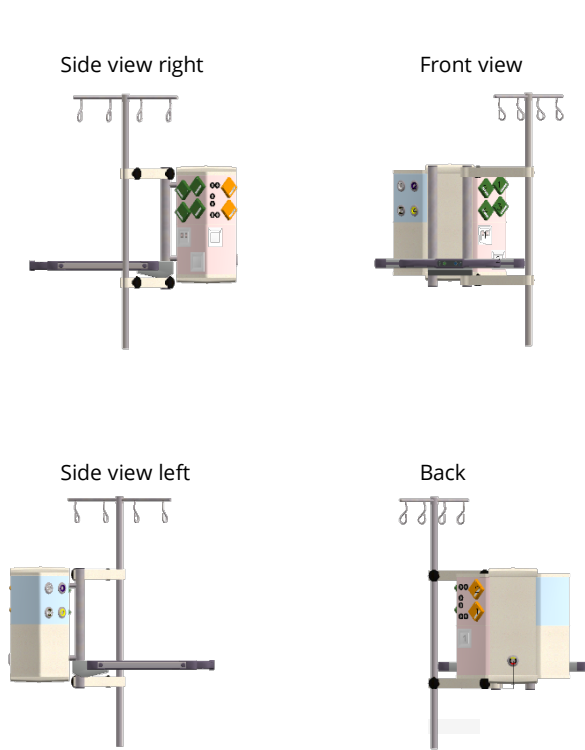


Back





# Configuration proposal Anesthesia (AN2)



Configuration description:  
 MediBoom®Air 800/800 with Service Head 400  
 1 x Shelf 520 mm, 1 x IV pole

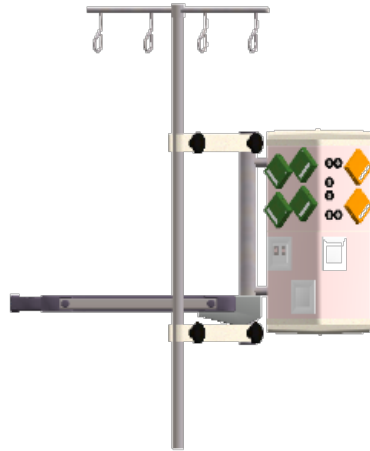
1. Brake system: Pneumatic
2. Action space\*: >4,000 mm
3. Weights and Pay Loads  
 Remaining Net Pay Load: 139 kg  
 Max. pendant pay load: 180 kg  
 Vertical force as configured: 3025 N
4. Remaining Diameter: 67 %

Number of service components											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1	1	1	1			1		6	6	1	2
Greggersen Forano DIN Standard								PEHA			

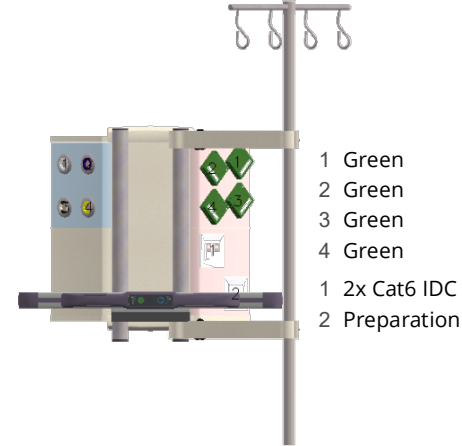
\* reference: centre of main bearing to centre of shelf

# Configuration proposal Anesthesia (AN2)

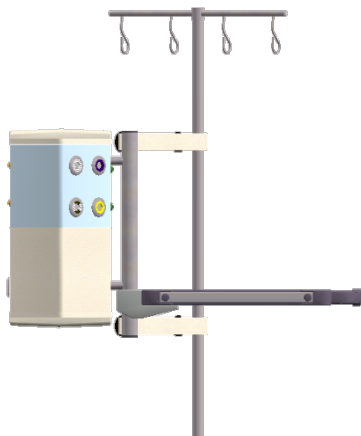
Side view right



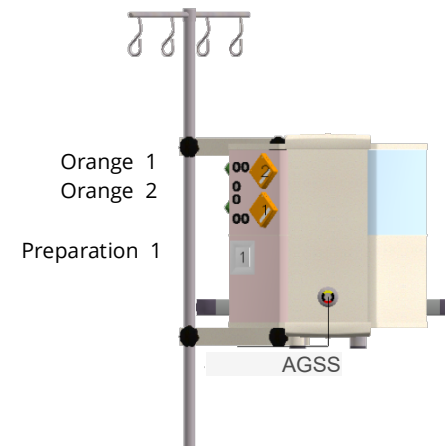
Front view



Side view left

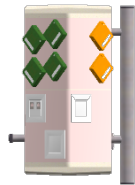


Back



# Configuration proposal Anesthesia (AN3)

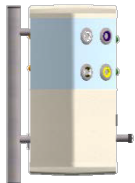
Side view right



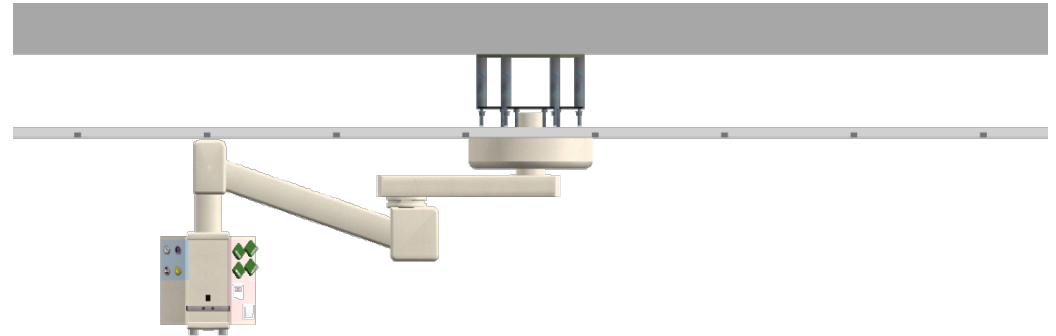
Front view



Side view left



Back



## Configuration description:

Multimovement pendant 600/1000 with Service Head 400

1. Brake system: Pneumatic
2. Action space\*: >4,000 mm
3. Weights and Pay Loads  
 Remaining Net Pay Load: 66 kg  
 Max. pendant pay load: 90 kg  
 Vertical force as configured: 2278 N
4. Remaining Diameter: 29 %

### Number of service components

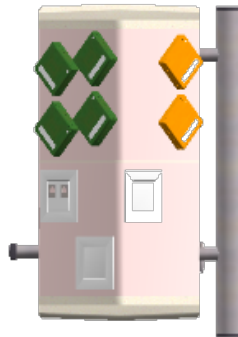
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1	1	1	1			1		6	6	1	2
Greggersen Forano DIN Standard								PEHA			

\* reference: centre of main bearing to centre of shelf



# Configuration proposal Anesthesia (AN3)

Side view right



Front view

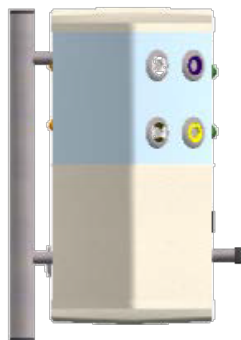
- O2 1
- N2O 2
- AIR5 3
- VAC 4



- 1 Green
- 2 Green
- 3 Green

- 1 2x Cat6 IDC
- 2 Preparation

Side view left



Back

- Orange 1
- Orange 2
- Preparation 1

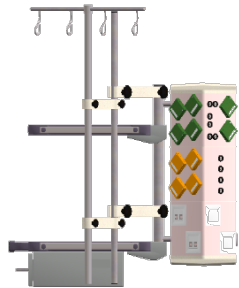


AGSS

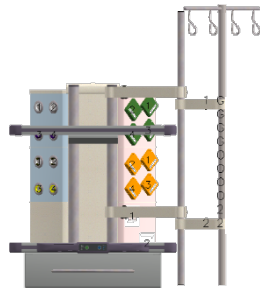


# Configuration proposal Anesthesia (AN4)

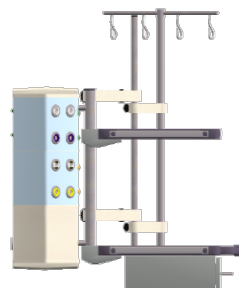
Side view right



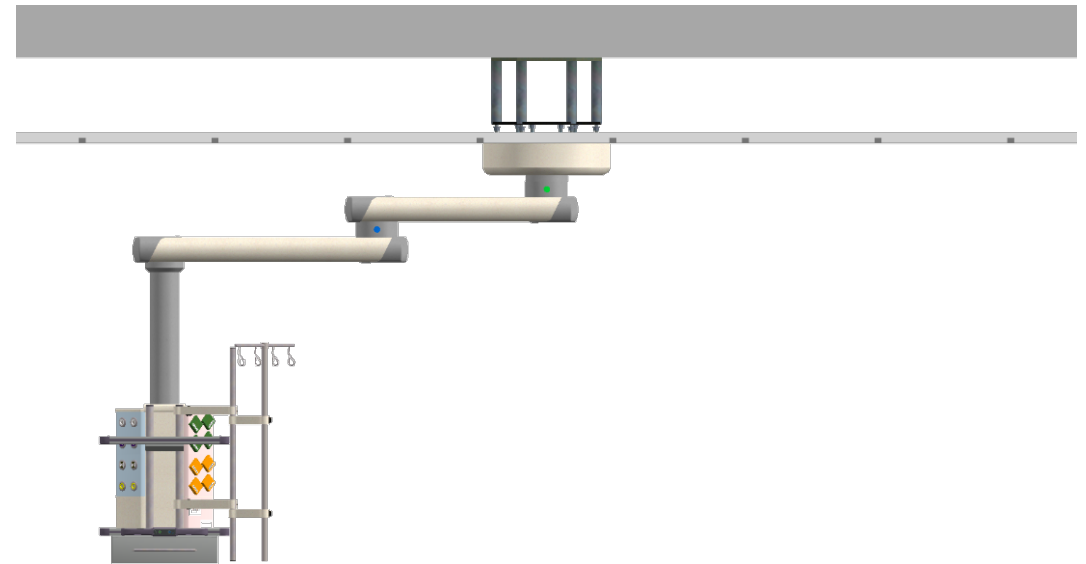
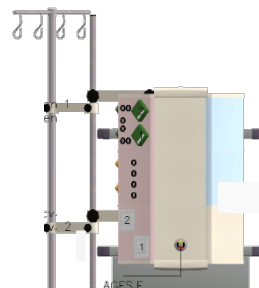
Front view



Side view left



Back



## Configuration description:

MediBoom®Air+ 800/1000 with Service Head 600  
 2 x Shelf 520 mm, 1 x Drawer, 1 x IV pole w. extension

1. Brake system: Electropneumatic
2. Action space\*: >4,400 mm
3. Weights and Pay Loads  
 Remaining Net Pay Load: 128 kg  
 Max. pendant pay load: 190 kg  
 Vertical force as configured: 3153 N
4. Remaining Diameter: 53 %

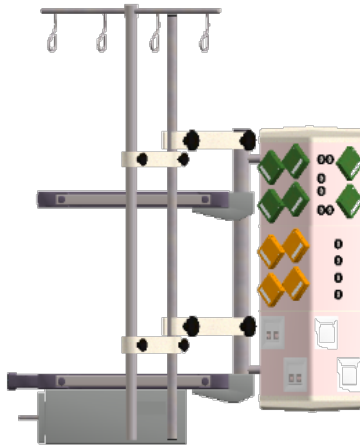
Number of service components											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
2	2	1	2			1		10	10	2	2
Greggersen Forano DIN Standard								PEHA			

\* reference: centre of main bearing to centre of shelf

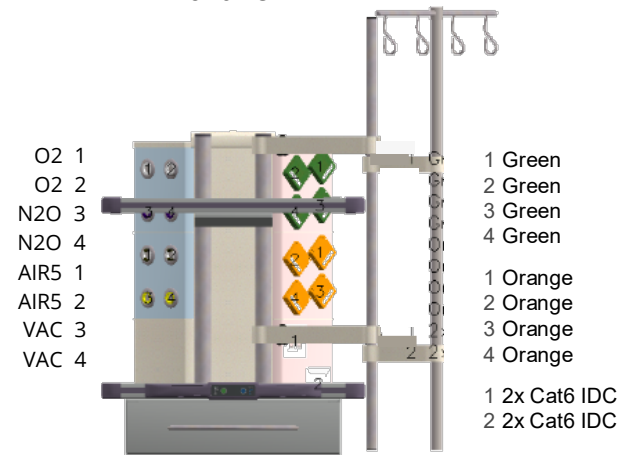


# Configuration proposal Anesthesia (AN4)

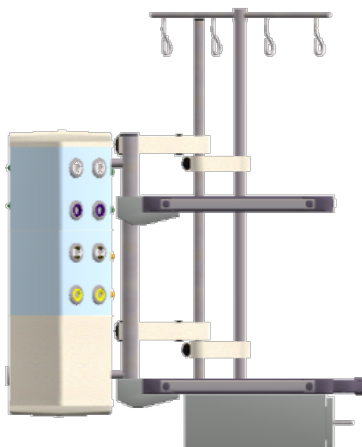
Side view right



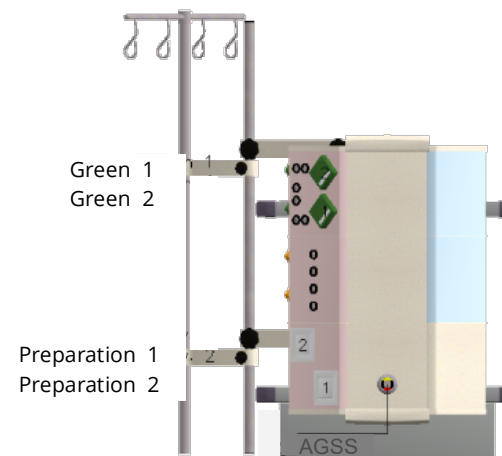
Front view



Side view left



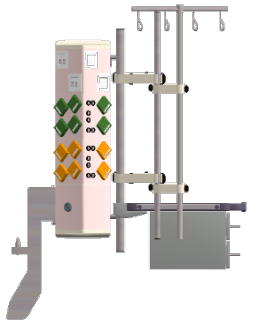
Back



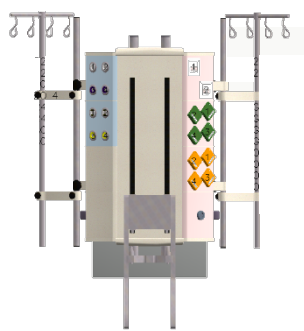


# Configuration proposal Anesthesia (AN5)

Side view right



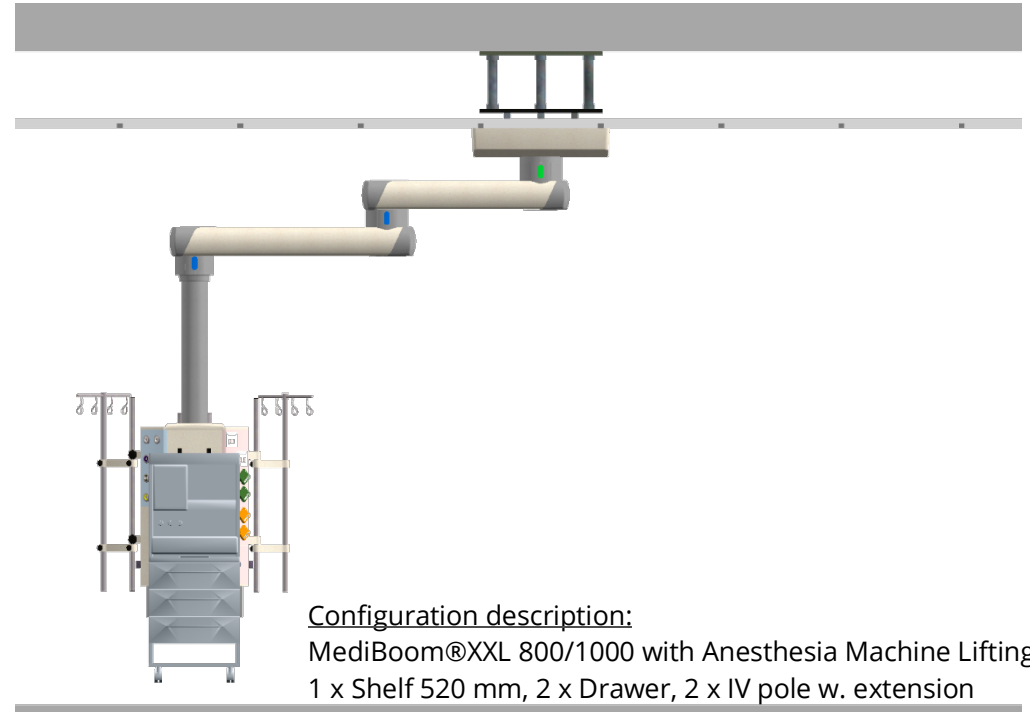
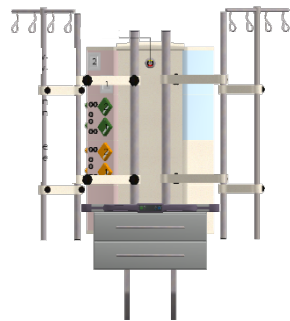
Front view



Side view left



Back



Configuration description:  
 MediBoom®XXL 800/1000 with Anesthesia Machine Lifting  
 1 x Shelf 520 mm, 2 x Drawer, 2 x IV pole w. extension

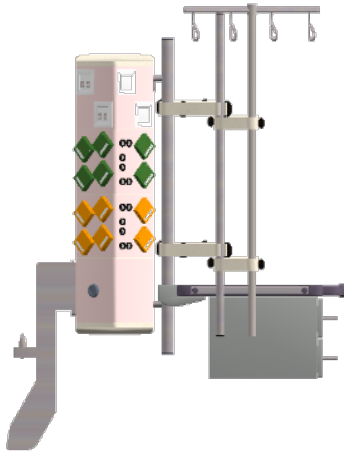
1. Brake system: Electromagnetic
2. Action space\*: >4,400 mm
3. Weights and Pay Loads  
 Remaining Net Pay Load: 235 kg  
 Max. pendant pay load: 340 kg  
 Vertical force as configured: 5684 N
4. Remaining Diameter: 52 %

Number of service components											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
2	2	2	2			1		12	12	2	2
Greggersen Forano DIN Standard								PEHA			

\* reference: centre of main bearing to centre of shelf

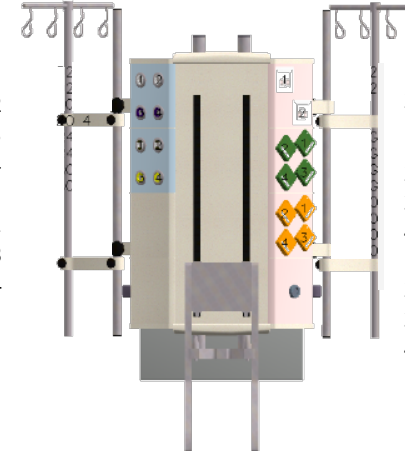
# Configuration proposal Anesthesia (AN5)

Side view right



Front view

- |        |               |
|--------|---------------|
| O2 1   | 1 2x Cat6 IDC |
| O2 2   | 2 2x Cat6 IDC |
| N2O 3  | 1 Green       |
| N2O 4  | 2 Green       |
| AIR5 1 | 3 Green       |
| AIR5 2 | 4 Green       |
| VAC 3  | 1 Orange      |
| VAC 4  | 2 Orange      |
|        | 3 Orange      |
|        | 4 Orange      |

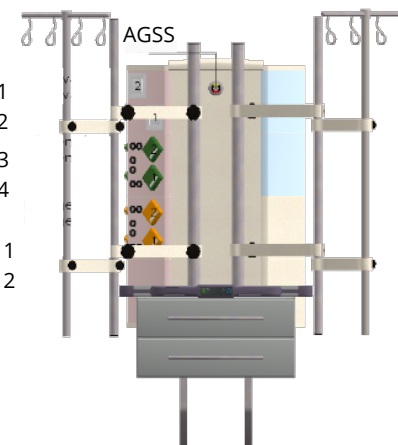


Side view left



Back

- |               |
|---------------|
| Preparation 1 |
| Preparation 2 |
| Green 3       |
| Green 4       |
| Orange 1      |
| Orange 2      |





# Configuration proposal General Surgery (CH1)

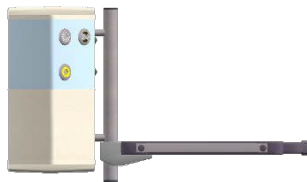
Side view right



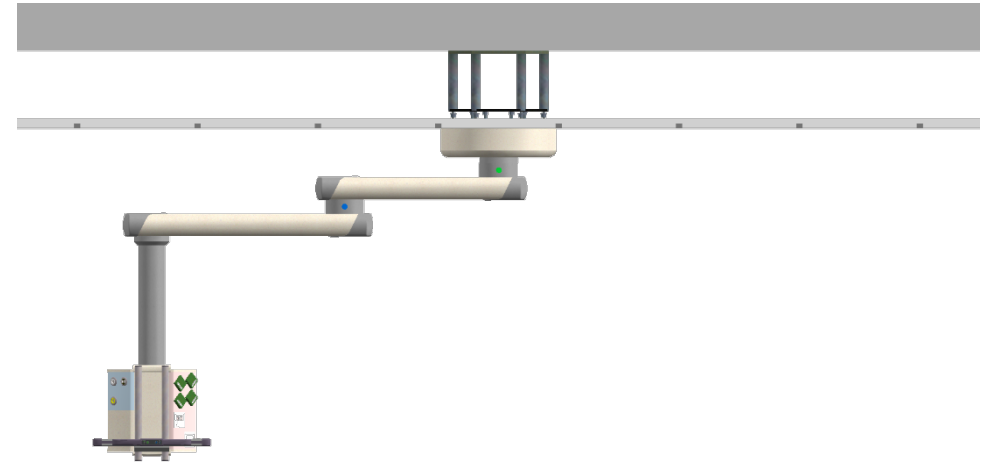
Front view



Side view left



Back



Configuration description:

MediBoom®Air 800/1000 with Service Head 400  
1 x Shelf 520 mm

1. Brake system: Pneumatic
2. Action space\*: >4,400 mm
3. Weights and Pay Loads  
Remaining Net Pay Load: 113 kg  
Max. pendant pay load: 150 kg  
Vertical force as configured: 2761 N
4. Remaining Diameter: 71 %

Number of service components											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1	1		1					4	4	1	2
Greggersen Forano DIN Standard								PEHA			

\* reference: centre of main bearing to centre of shelf



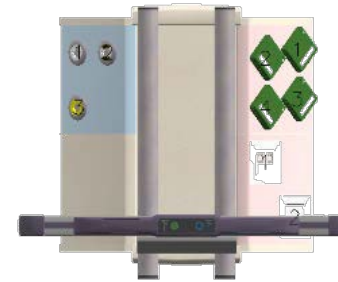
# Configuration proposal General Surgery (CH1)

Side view right



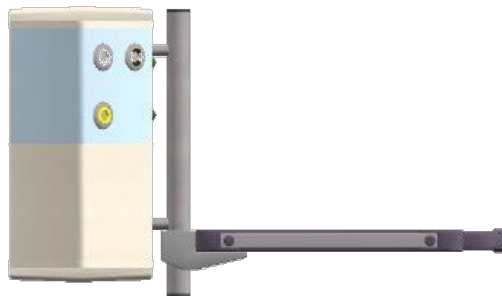
Front view

O2 1  
AIR4 2  
VAC 3



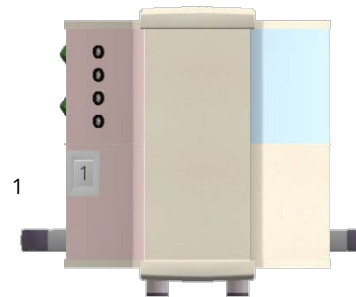
1 Green  
2 Green  
3 Green  
4 Green  
1 2x Cat6 IDC  
2 Preparation

Side view left



Back

Preparation 1



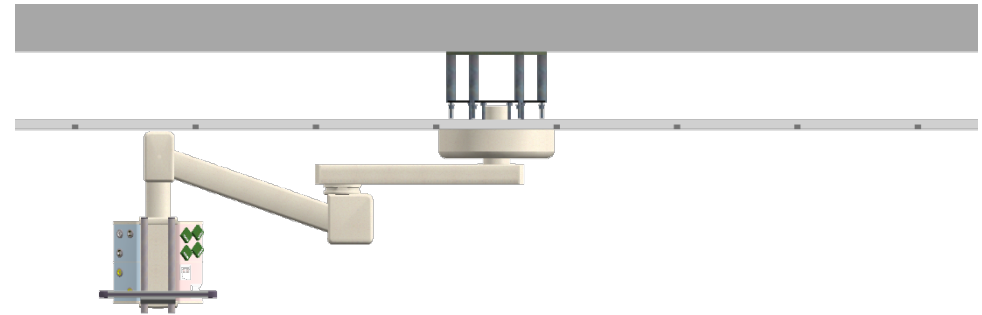
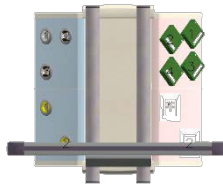


# Configuration proposal General Surgery (CH2)

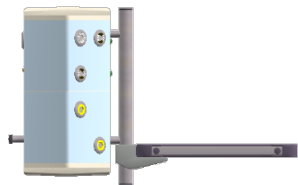
Side view right



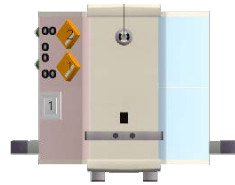
Front view



Side view left



Back



Configuration description:

Multimovement pendant 800/1000 with Service Head 400  
1 x Shelf 520 mm

1. Brake system: Pneumatic
2. Action space\*: >4,400 mm
3. Weights and Pay Loads  
Remaining Net Pay Load: 56 kg  
Max. pendant pay load: 90 kg  
Vertical force as configured: 2322 N
4. Remaining Diameter: 27 %

\* reference: centre of main bearing to centre of shelf

Number of service components											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1	2		2				1	8	6	1	2
Greggersen Forano DIN Standard								PEHA			



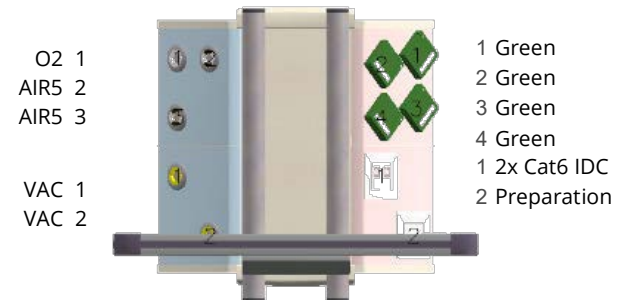


# Configuration proposal General Surgery (CH2)

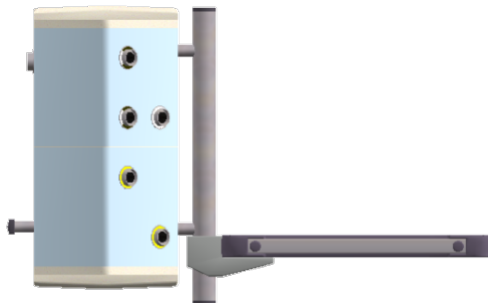
Side view right



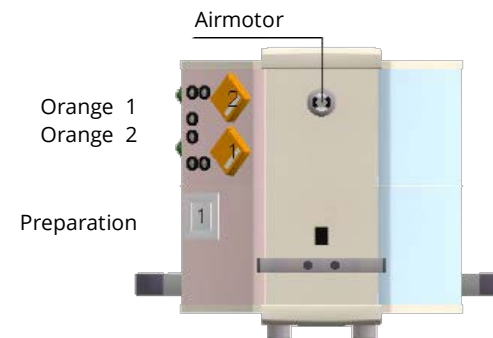
Front view



Side view left

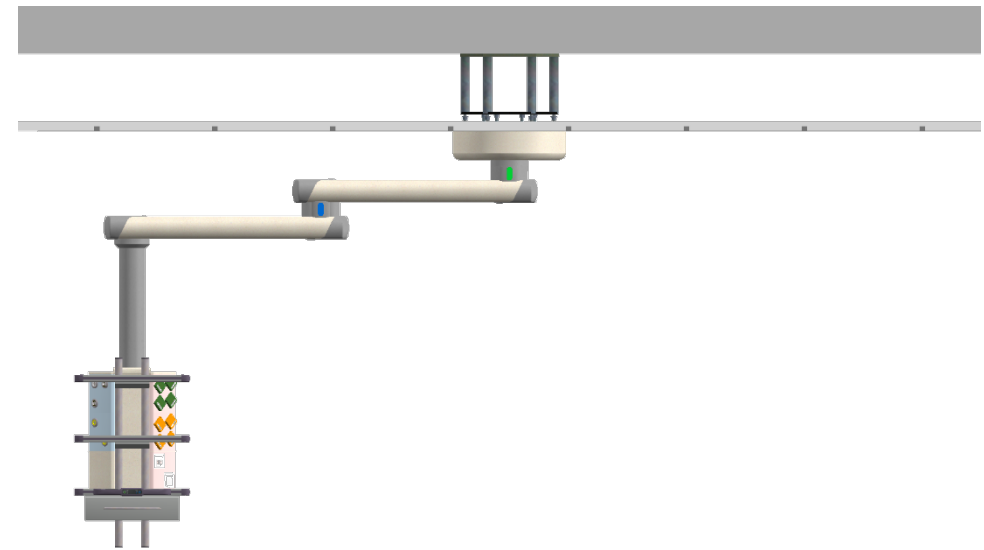
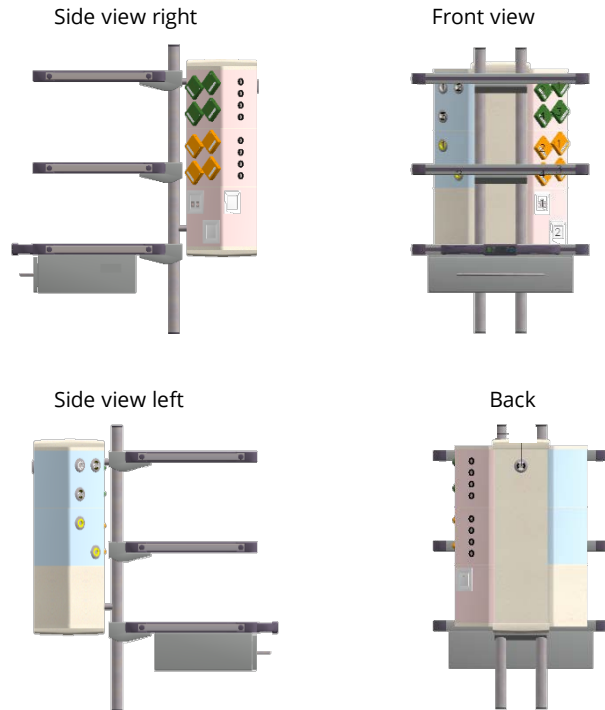


Back





# Configuration proposal General Surgery (CH3)



**Configuration description:**  
 MediBoom® 1000/1000 with Service Head 600  
 3 x Shelf 520 mm, 1 x Drawer

1. Brake system: Electromagnetic
2. Action space\*: >4,800 mm
3. Weights and Pay Loads  
 Remaining Net Pay Load: 106 kg  
 Max. pendant pay load: 170 kg  
 Vertical force as configured: 2986 N
4. Remaining Diameter: 65 %

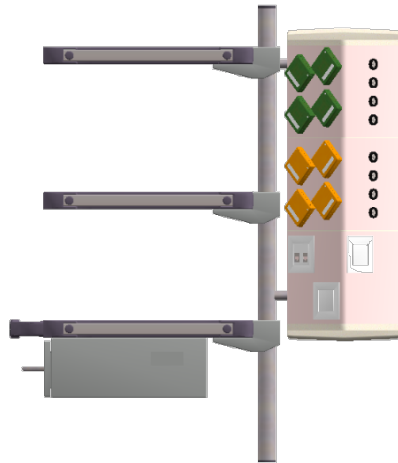
Number of service components											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air-moto	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1	2		2				1	8	8	1	2
Greggersen Forano DIN Standard								PEHA			

\* reference: centre of main bearing to centre of shelf



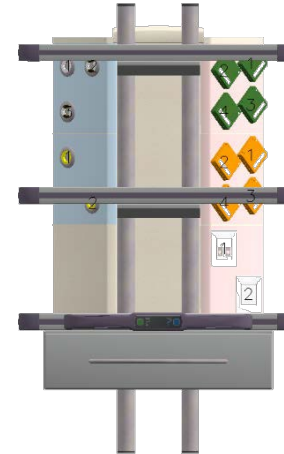
# Configuration proposal General Surgery (CH3)

Side view right



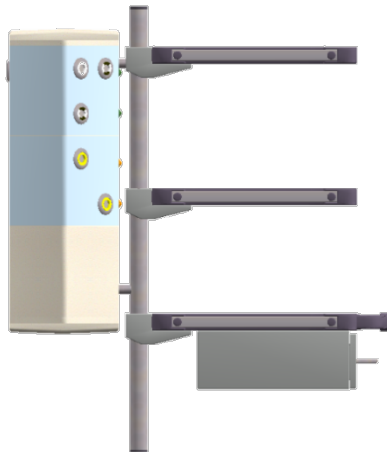
Front view

- O2 1
- AIR5 2
- AIR5 3
- VAC 1
- VAC 2



- 1 Green
- 2 Green
- 3 Green
- 4 Green
- 1 Orange
- 2 Orange
- 3 Orange
- 4 Orange
- 1 2x Cat6 IDC
- 2 Preparation

Side view left



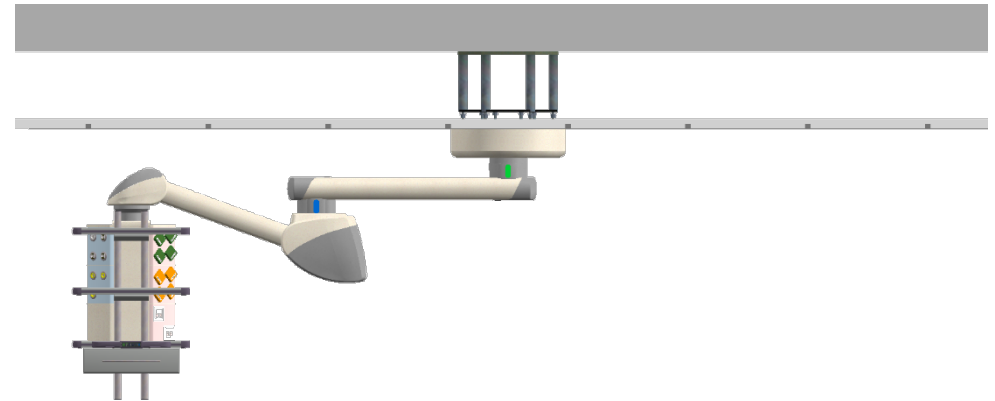
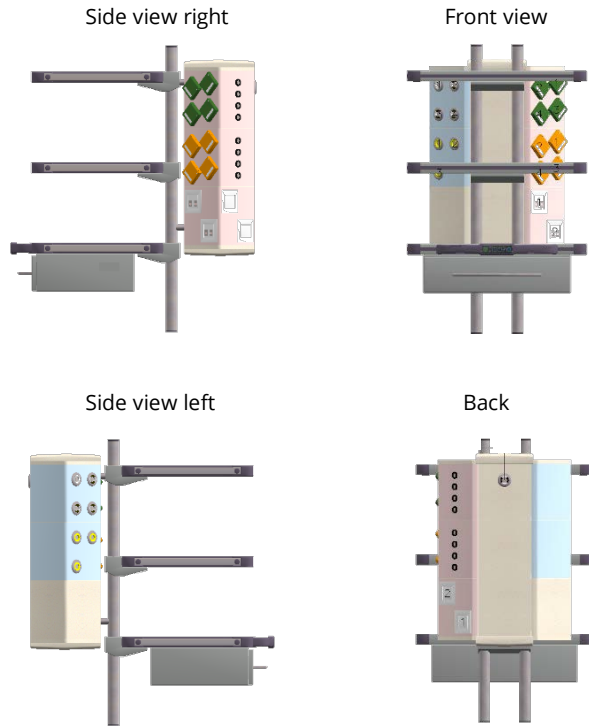
Back



Preparation 1



# Configuration proposal General Surgery (CH4)



Configuration description:  
 MediLift 1000/1000 with Service Head 600  
 3 x Shelf 520 mm, 1 x Drawer

1. Brake system: Electromagnetic
2. Action space\*: >4,800 mm
3. Weights and Pay Loads  
 Remaining Net Pay Load: 89 kg  
 Max. pendant pay load: 150 kg  
 Vertical force as configured: 3166 N
4. Remaining Diameter: 52 %

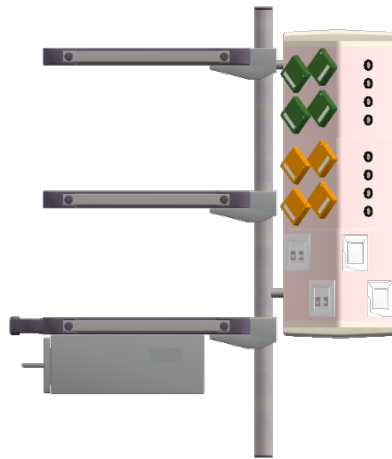
Number of service components											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1	3		3				1	8	8	2	2
Greggersen Forano DIN Standard								PEHA			

\* reference: centre of main bearing to centre of shelf



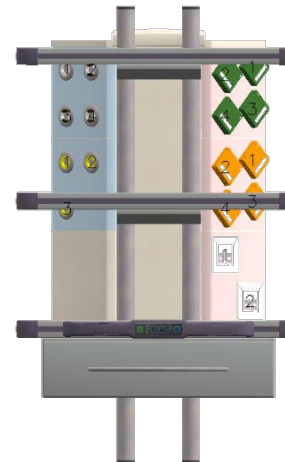
# Configuration proposal General Surgery (CH4)

Side view right

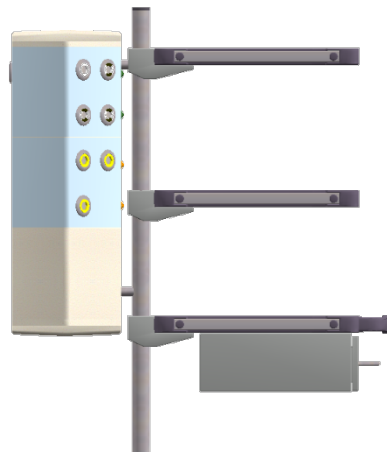


Front view

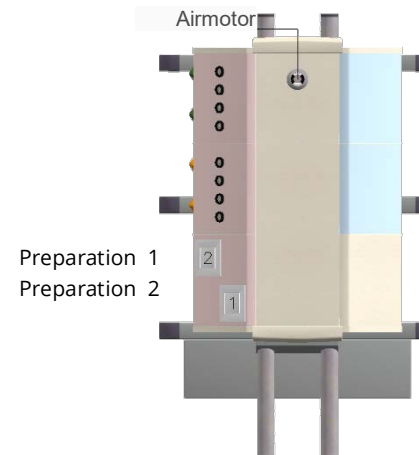
- |        |   |               |
|--------|---|---------------|
| O2 1   |   | 1 Green       |
| AIR5 2 |   | 2 Green       |
| AIR5 3 |   | 3 Green       |
| AIR5 4 |   | 4 Green       |
| VAC 1  | 1 | 1 Orange      |
| VAC 2  | 2 | 2 Orange      |
| VAC 3  | 3 | 3 Orange      |
|        | 4 | 4 Orange      |
|        |   | 1 2x Cat6 IDC |
|        |   | 2 2x Cat6 IDC |



Side view left



Back



# Configuration proposal ICU (IC1)

Side view right



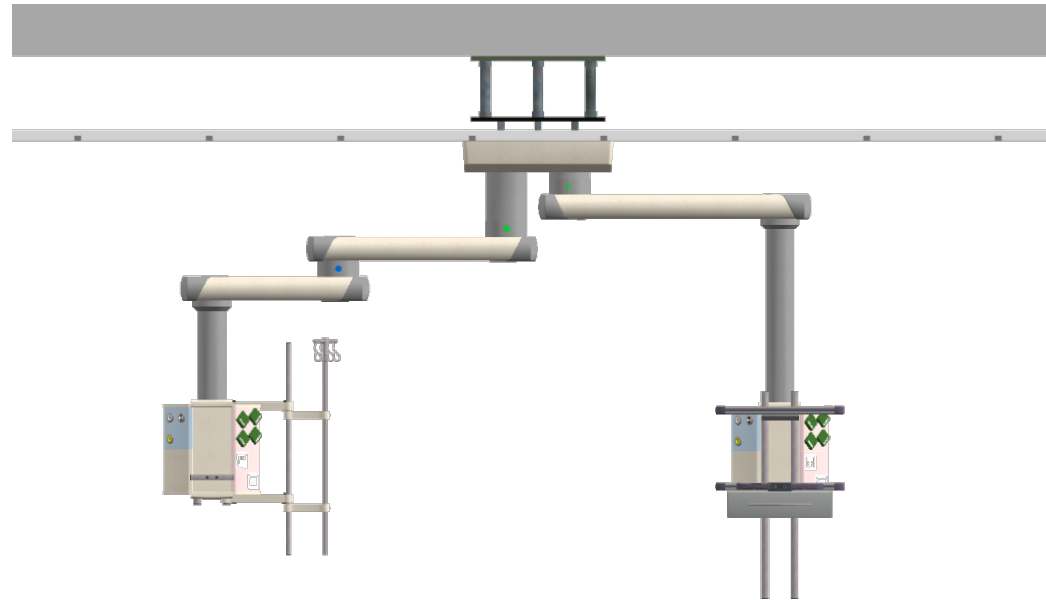
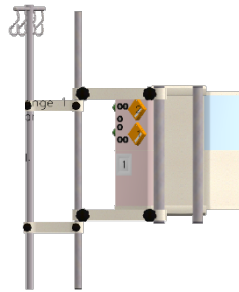
Front view



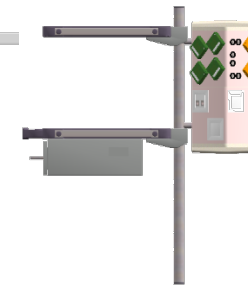
Side view left



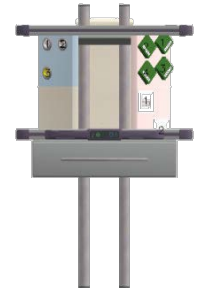
Back



Side view right



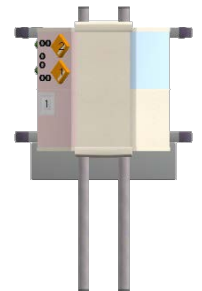
Front view



Side view left



Back



Configuration infusion side:  
 MediBoom® Air 800/600  
 with Service Head 400  
 1 x Infusion pole with extension

Configuration ventilation side  
 MediBoom® Air 1000  
 with Service Head 400  
 2 x Shelf 520 mm, 1 x Drawer

1. Brake systems: Pneumatic
2. Action spaces\*: >3,600/>2,800 mm
3. Weights and Pay Loads  
 Remaining Net Pay Load: 188/271 kg  
 Max. pendant pay load: 220/320 kg  
 Vertical force as configured: 7535 N
4. Remaining Diameter: 82/82 %

\* reference: centre of main bearing to centre of shelf

Number of service components - Infusion side / Ventilation side											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1 / 1	1 / 1		1 / 1					6 / 6	6 / 6	1 / 1	2 / 2
Greggersen Forano DIN Standard								PEHA			

# Configuration proposal ICU (IC1)

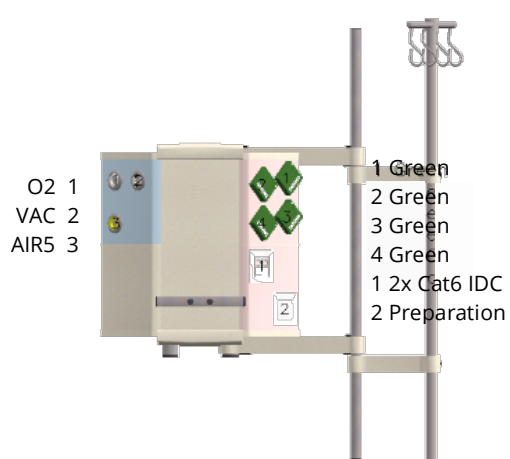
## Infusion side

## Ventilation side

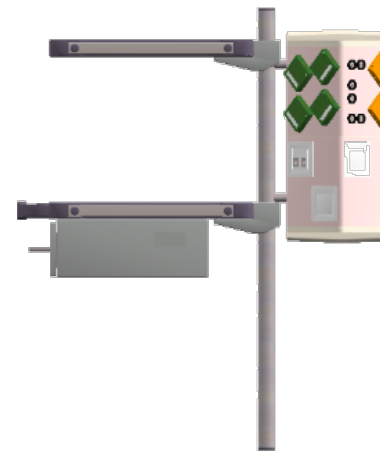
Side view right



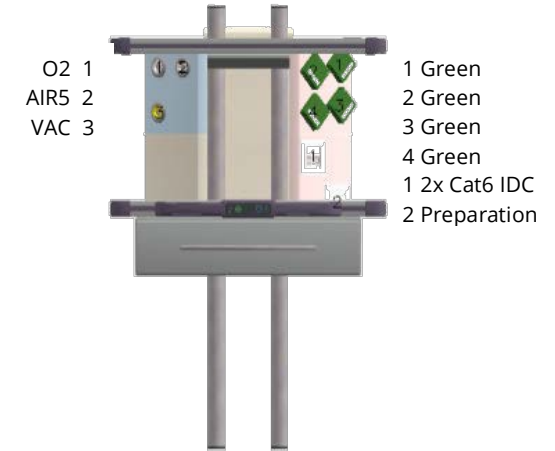
Front view



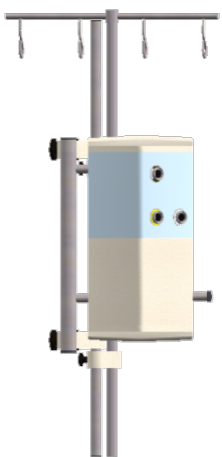
Side view right



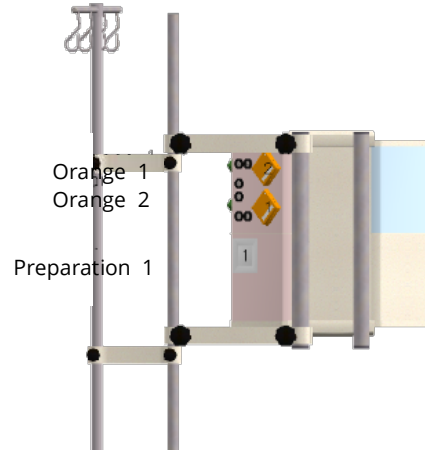
Front view



Side view left



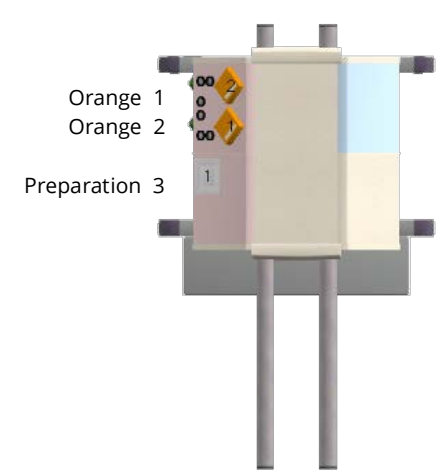
Back



Side view left

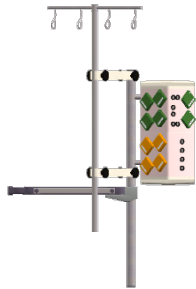


Back

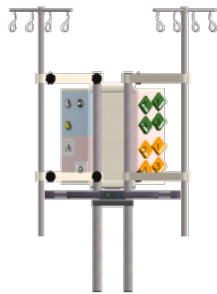


# Configuration proposal ICU (IC2)

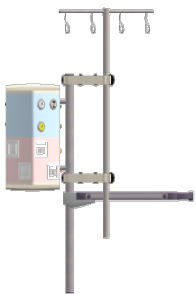
Side view right



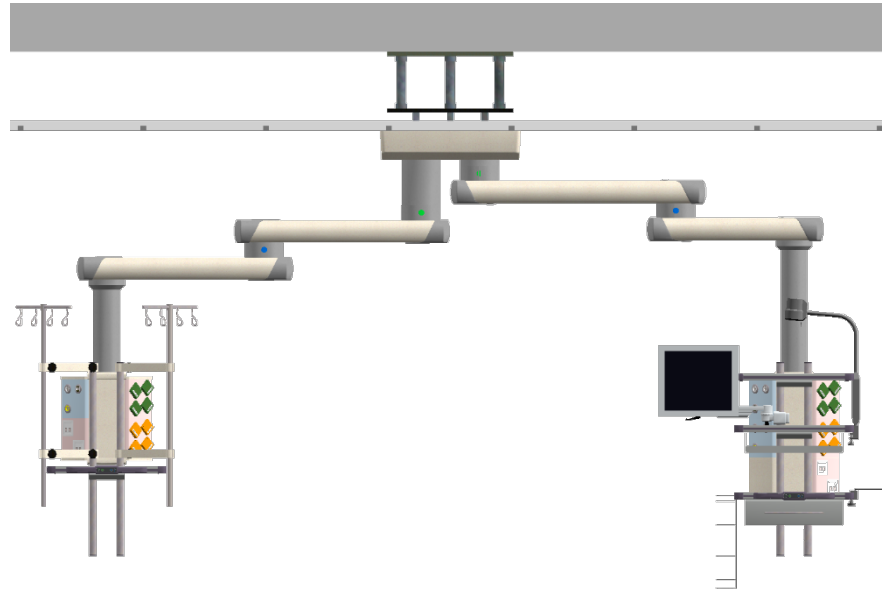
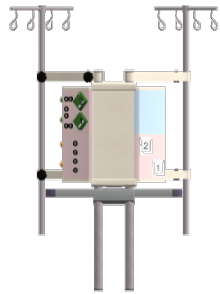
Front view



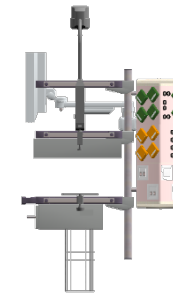
Side view left



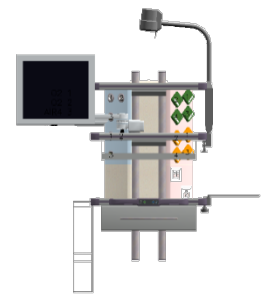
Back



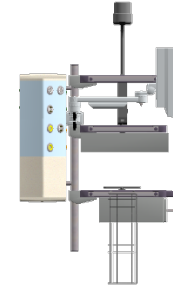
Side view right



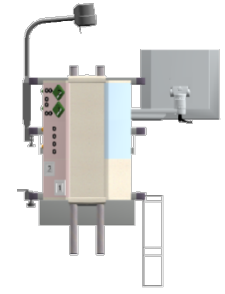
Front view



Side view left



Back



Configuration infusion side:  
 MediBoom® Air+ 800/800  
 with Service Head 400  
 1 x Shelf 520 mm  
 2 x Infusion pole with extension

Configuration ventilation side:  
 MediBoom® Air+ 1000/600  
 with Service Head 600  
 3 x Shelf 520 mm, 1 x Drawer  
 1 x Keyboard/writing tray

- 1 Brake systems: Pneumatic
- 2 Action spaces\*: >4,000/>4,000 mm
- 3 Weights and Pay Loads  
 Remaining Net Pay Load: 178/147 kg  
 Max. pendant pay load: 220/220 kg  
 Vertical force as configured: 6822 N
- 4 Remaining Diameter: 80/71 %

\* reference: centre of main bearing to centre of shelf

Number of service components - Infusion side / Ventilation side											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air-motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
1 / 2	1 / 2		1 / 2					10 / 12	10 / 12	2 / 2	2 / 2
Greggersen Forano DIN Standard								PEHA			

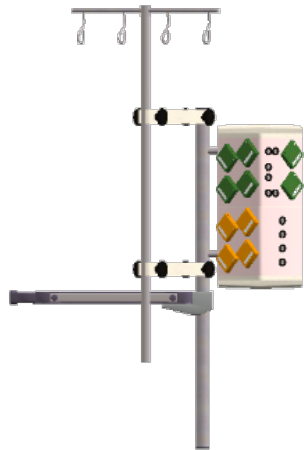


# Configuration proposal ICU (IC2)

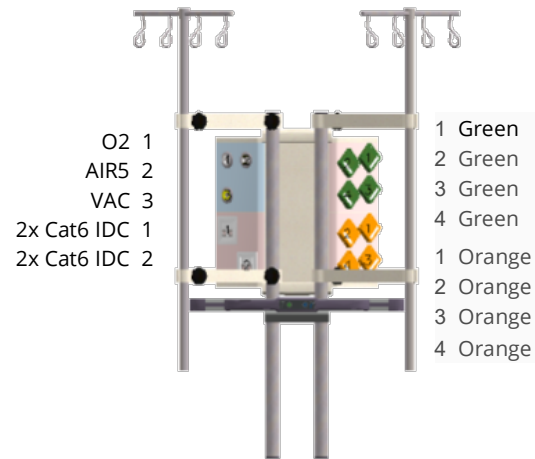
## Infusion side

## Ventilation side

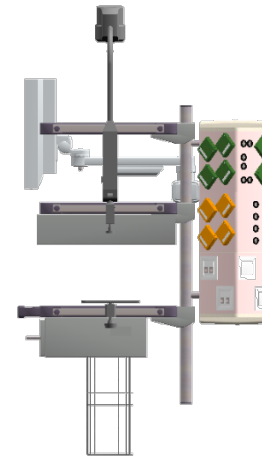
Side view right



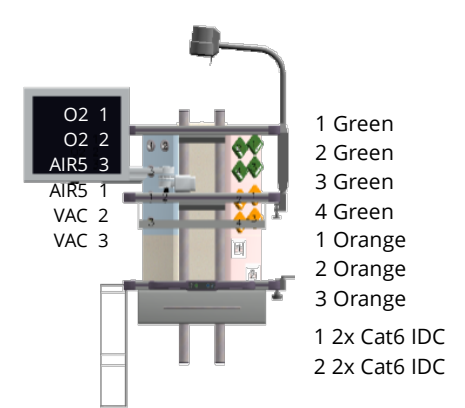
Front view



Side view right



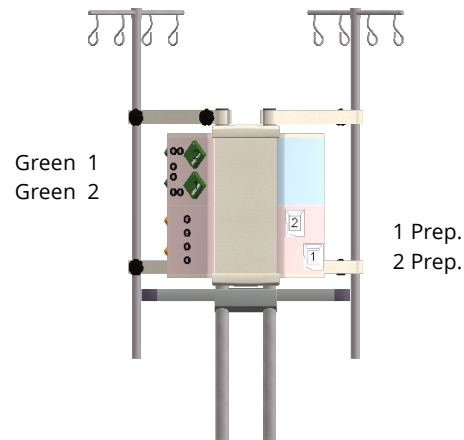
Front view



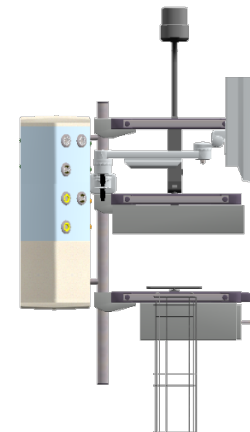
Side view left



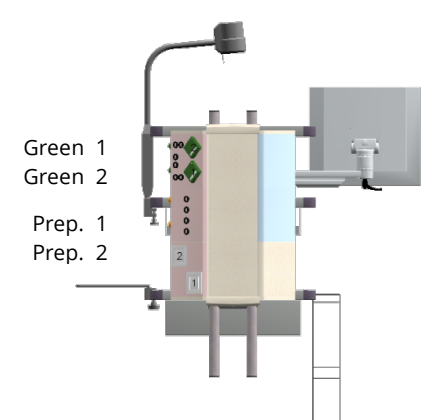
Back



Side view left

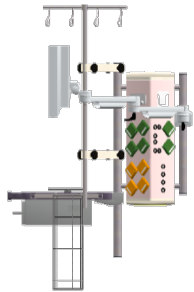


Back

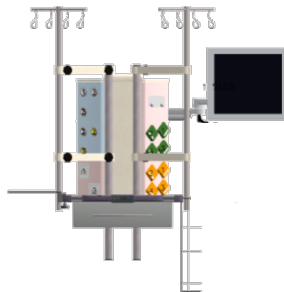


# Configuration proposal ICU (IC3)

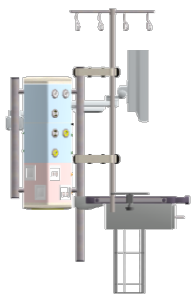
Side view right



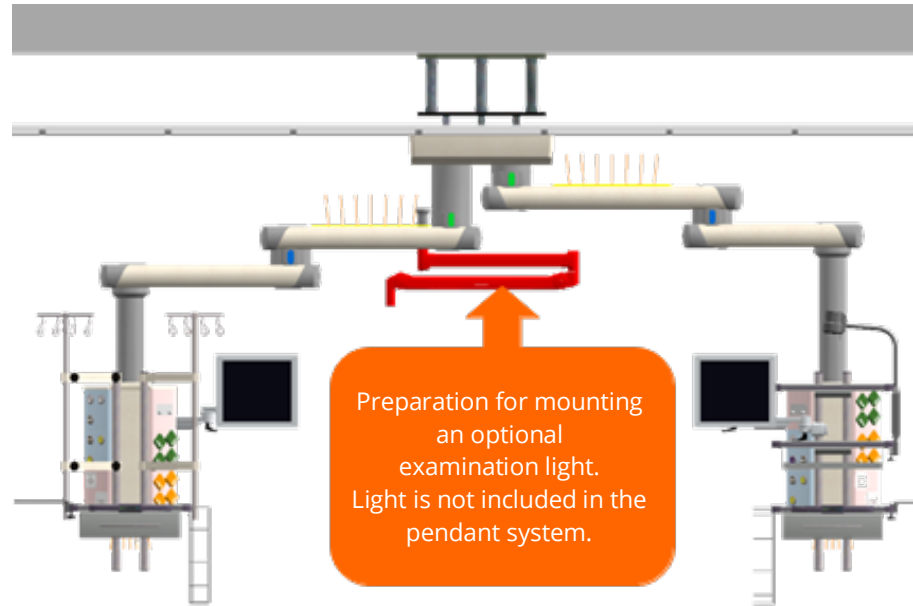
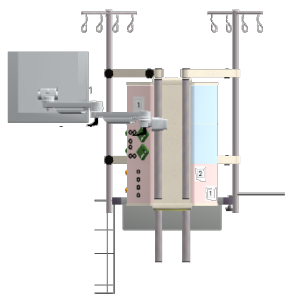
Front view



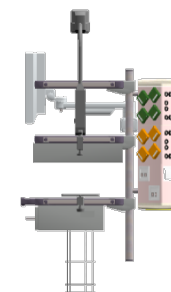
Side view left



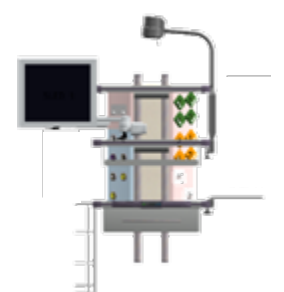
Back



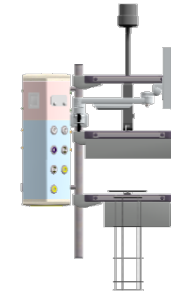
Side view right



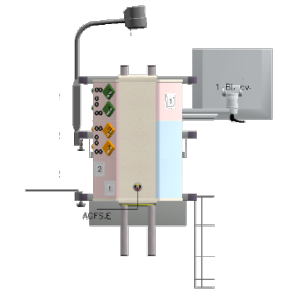
Front view



Side view left



Back



Configuration infusion side:  
 MediBoom® Air+ 800/800  
 with Service Head 600  
 1 x Shelf 520 mm, 1 x Drawer  
 2 x Infusion pole with extension

Configuration ventilation side:  
 MediBoom® Air+ 1000/600  
 with Service Head 600  
 3 x Shelf 520 mm, 1 x Drawer  
 1 x Keyboard/writing tray

- 1 Brake systems: Pneumatic
- 2 Action spaces\*: >4,000/>4,000 mm
- 3 Weights and Pay Loads  
 Remaining Net Pay Load: 161/141 kg  
 Max. pendant pay load: 220/220 kg  
 Vertical force as configured: 6822 N
- 4 Remaining Diameter: 56/46 %

\*reference: centre of main bearing to centre of shelf

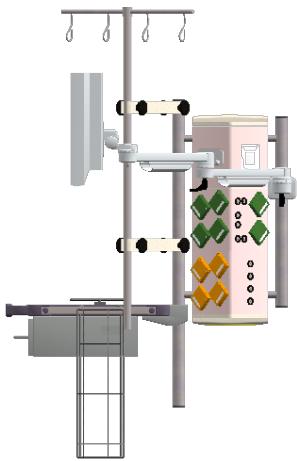
Number of service components - Infusion side / Ventilation side											
O <sub>2</sub>	Air 4/5	N <sub>2</sub> O	Vac	CO <sub>2</sub>	N <sub>2</sub>	AGSS	Air 8/ Air- motor	Electrical sockets	Earth bonding sockets	Double RJ45	Data prep.
2 / 2	2 / 2	0 / 1	2 / 2			0 / 1		10 / 12	6 / 6	2 / 2	2 / 2
Greggersen Forano DIN Standard								PEHA			

# Configuration proposal ICU (IC3)

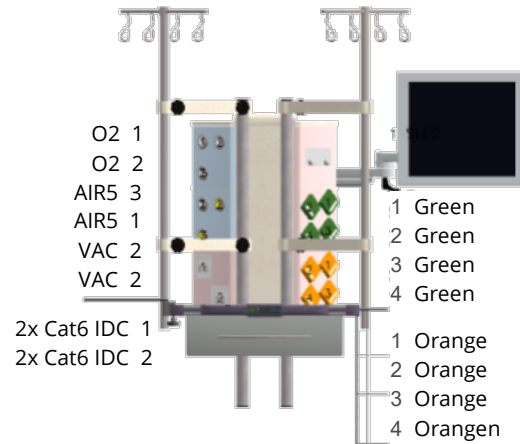
## Infusion side

## Ventilation side

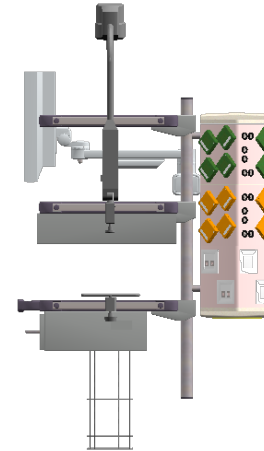
Side view right



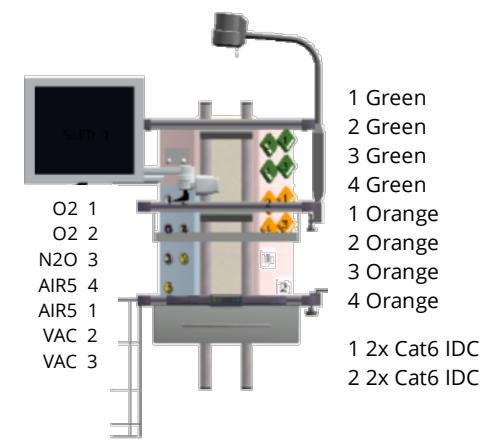
Front view



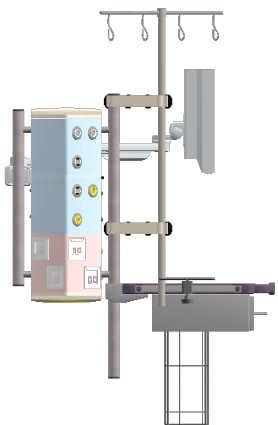
Side view right



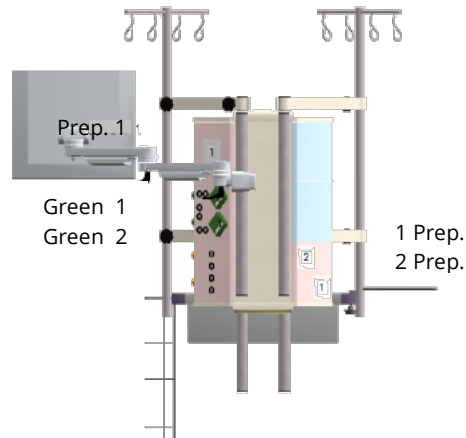
Front view



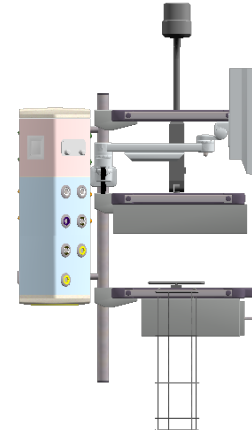
Side view left



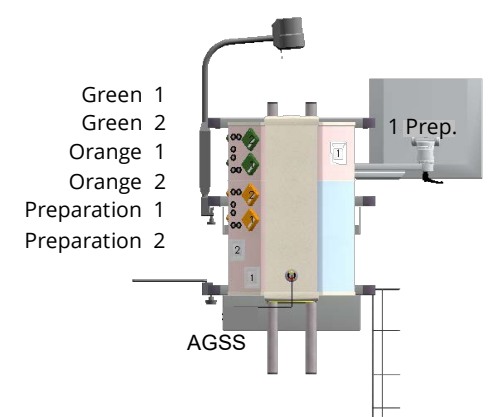
Back



Side view left



Back





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