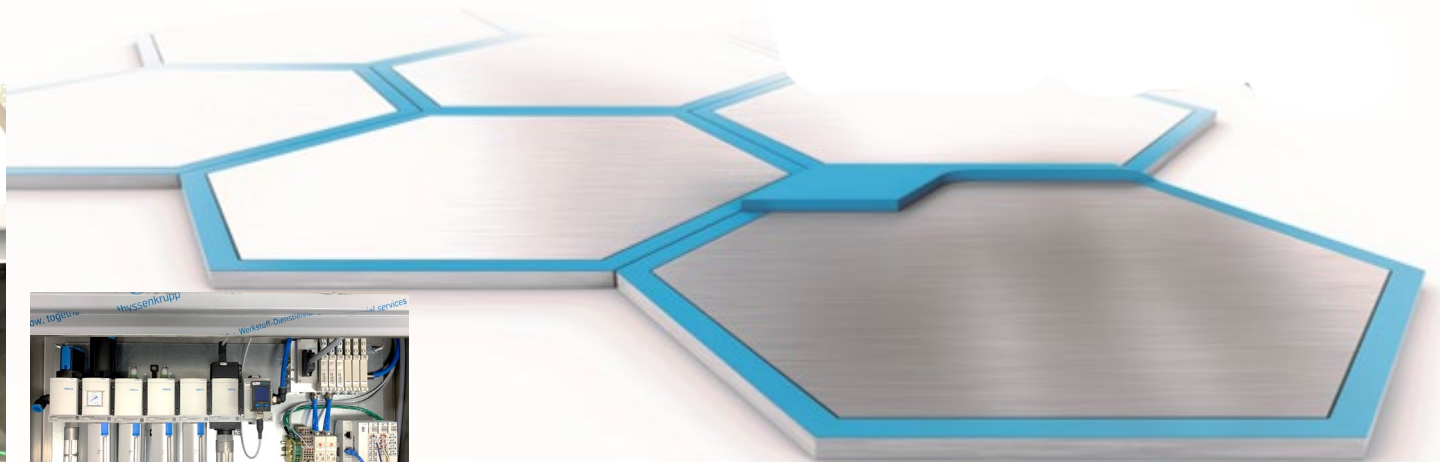
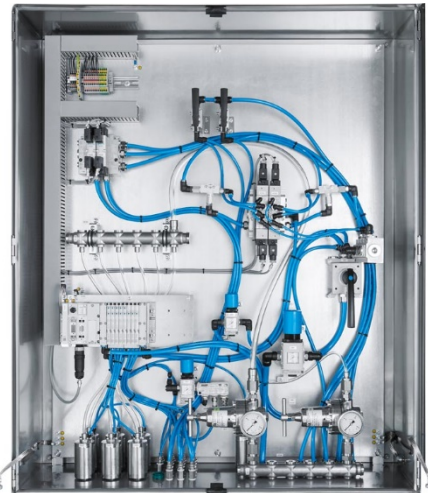
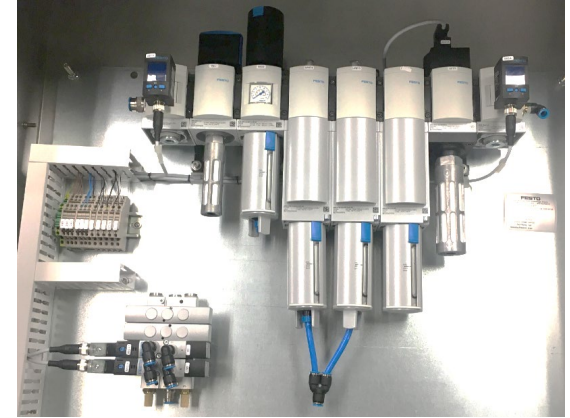
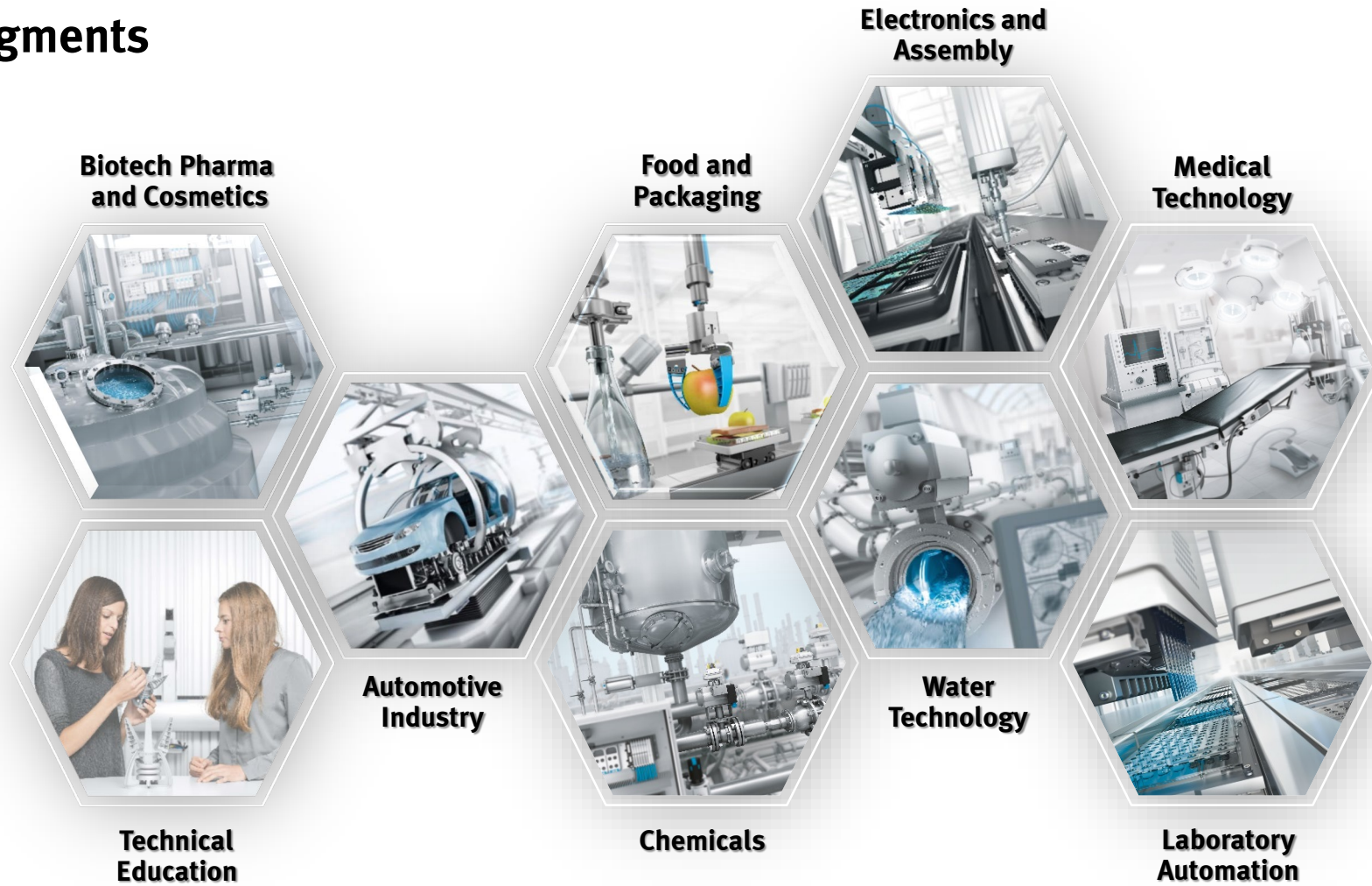


Configurable Air Preparation Units



Customer Solution

Industry segments



Risk estimation

To calculate the performance level required (PL_r).

S Severity of injury

S1 slight (normally reversible injury)

S2 serious (normally irreversible injury or death)

F Frequency and/or exposure to hazard

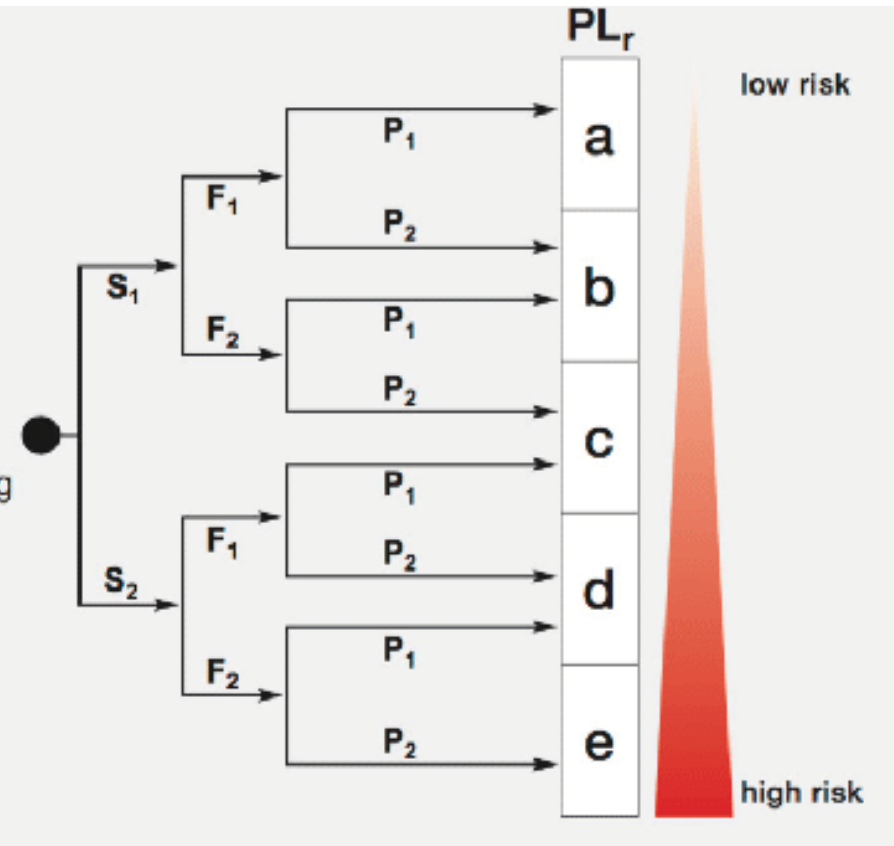
F1 seldom to less often and/or exposure time is short

F2 frequent to continuous and/or exposure time is long

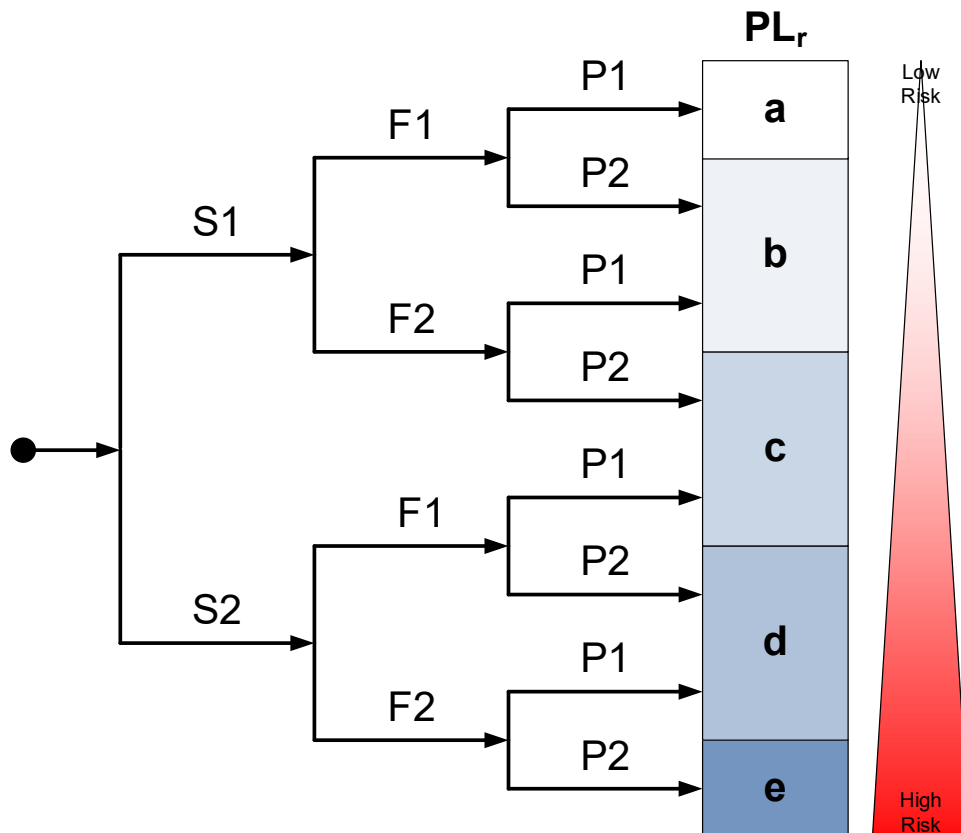
P Possibility of avoiding hazard or limiting harm

P1 possible under specific conditions

P2 scarcely possible



What is a risk estimation?



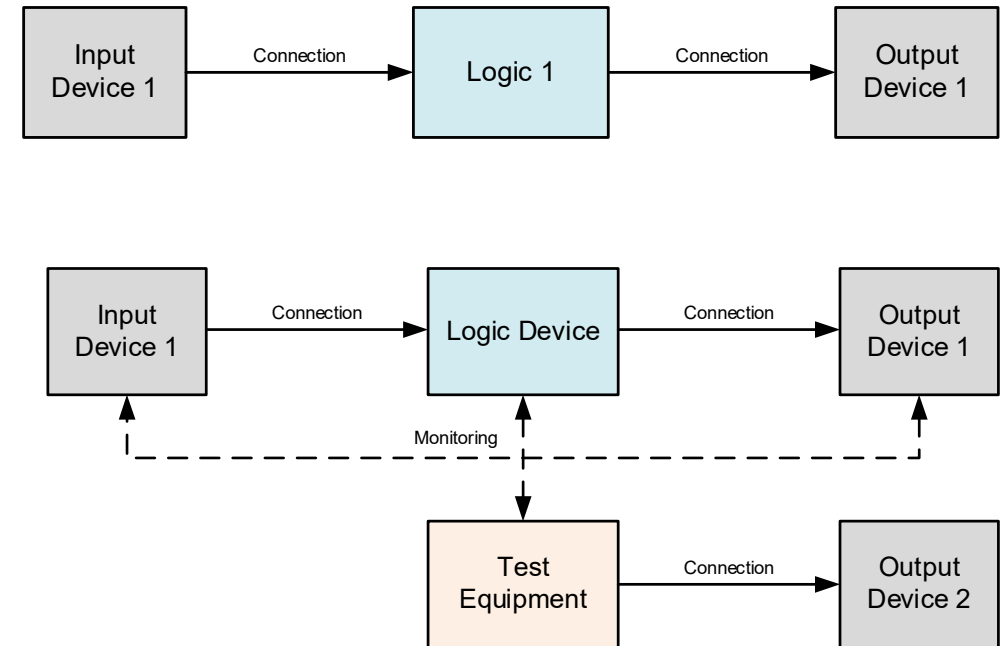
One possibility (of approx. 100): Risk graph

- Question: Are reversible or irreversible injuries possible (S1/S2)?**
Limit: min. 1 day incapable of work (doctor required)
- Question: Is hazard seldom / less frequent and short or often and long (F1/F2)?**
Limit (sector dependent), e.g. access with 10 min. in a shift (8 h) is less frequent and short.
- Question: Avoiding or reduction possible (P1/P2)?**
Limit: During direct access in hazard area is it not possible to avoid the hazard, e.g. at a press.

Generally are risk reduction measures starting with PL_r=c necessary.

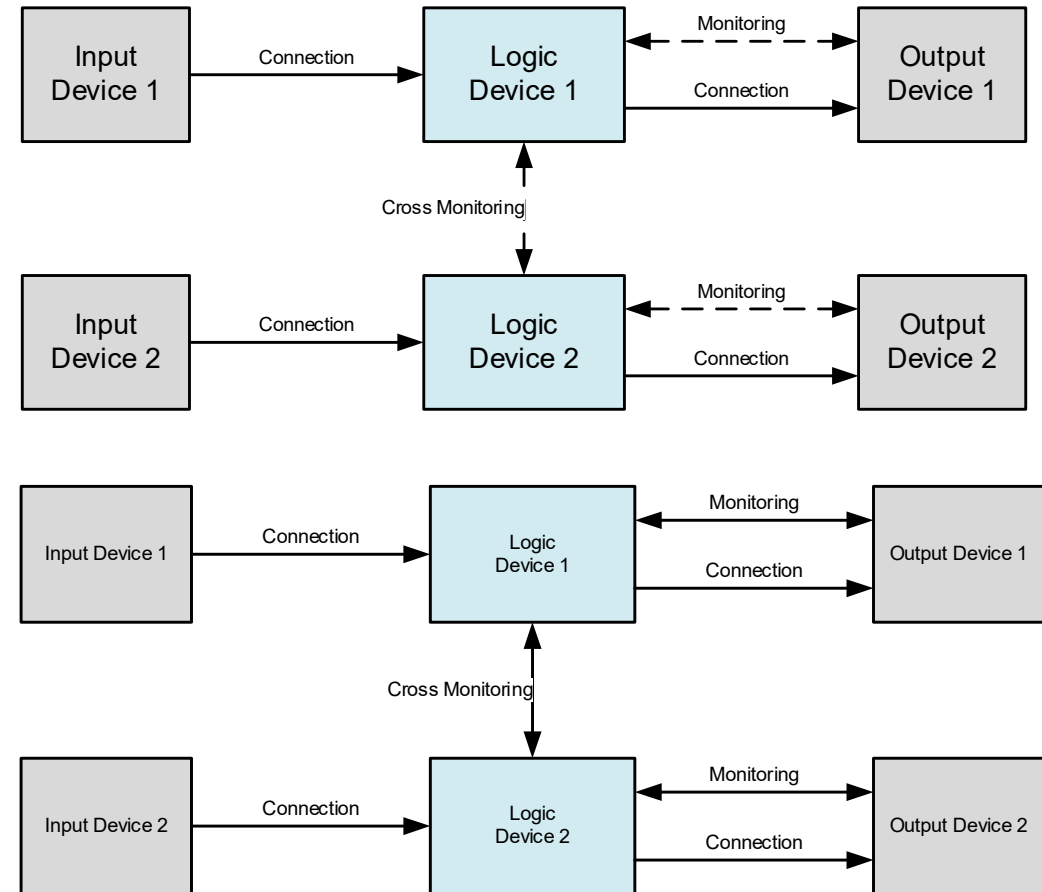
Non-quantifiable Aspect: Behaviour under Fault Conditions

- The structure essentially determines the behavior of a safety function in the event of an error.
- **Category 1: 1-channel system**
The occurrence of a fault can lead to the loss of the safety function.
- **Category 2: 1-channel system with monitoring**
The occurrence of a fault between the tests can lead to the loss of the safety function. The test detects the loss of the safety function.






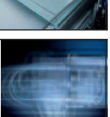

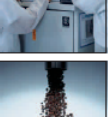


Non-quantifiable Aspect: Behaviour under Fault Conditions

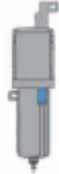


- **Category 3: 2-channel system with monitoring**
An fault is detected in time to prevent loss of the safety function.
- **Category 4: 2-channel system with monitoring**
 - An error is detected in time to prevent loss of the safety function.
 - Accumulation of undetected errors are considered.



Classified air quality from Festo


Compressed air production	Pneumatic distribution	Air preparation	Class ⁰⁾	Typical applications
Compressor	[--:--:--]	Water separator	[--:7:4]	All applications which require virtually condensate-free compressed air. No defined particle filtering 
Prefilter Air-dryer	[7:4:4] ⁰⁾	40 µm filter	[7:4:4]	Operating medium for valves, cylinders, secondary packaging (standard) 
		5 µm filter	[6:4:4]	Servo pneumatic positioning with proportional directional control valves, pneumatic tools 
		5 µm filter 1 µm filter ^{a)}	[5:4:3]	Applications with a residual oil content ≤0.5 mg/m ³ , textile industry, air-jet spinning machines, paper industry 
		5 µm filter 1 µm filter ^{a)} 0.01 µm filter	[1:4:2]	Applications with a residual oil content of ≤0.01 mg/m ³ , air bearings, painting, powder coating 
		5 µm filter 1 µm filter ^{a)} 0.01 µm filter Activated carbon filter	[1:4:1]	Applications with a residual oil content of ≤0.003mg/m ³ , reduction of oil vapours and odours, optical instruments, sealing air for glass scales/laser, primary packaging 
		5 µm filter 1 µm filter ^{a)} 0.01 µm filter Activated carbon filter Membrane air dryer	[1:3:1]	Semiconductor industry, Pharmaceutical products 
		5 µm filter Adsorption dryer	[2:2:2]	Applications in low temperature ranges, dry process air, powder transport, (food manufacturing: 1:2:1) 
			[7:7:4] ⁰⁾	

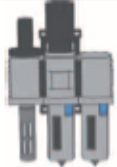
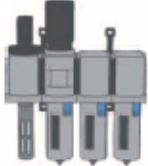
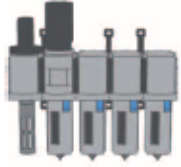
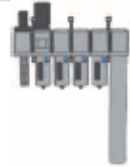

Flow at supply pressure of 10 bar, on units with regulator output pressure of 6 bar in Nl/min

1,000	3,000	5,000	7,000	9,000	11,000	13,000	15,000	17,000	19,000	21,000	23,000	
564858 MS6-LWS-1/2-UV-WB		567857 MS9-LWS-1-UV-WP										
*531029 MSB4-1/4:C4:J1-WP		*531030 MSB6-1/2:C4:J1-WP		*552938 MSB9-1:C2:J73-WP								
*531029 MSB4-1/4:C4:J3-WP		*531030 MSB6-1/2:C4:J3-WP		*552938 MSB9-1:C2:J71-WP								

* The overview only shows a selection of devices and possible combinations.

40 µm and 5 µm filters from Festo have an additional mechanism for separating liquids.

 **Note:** For even higher flows, MS12 series components are available. Ask your sales engineer for the ideal combination.

		200	400	600	800	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	
*531029 MSB4-1/4:C4:j3:l1-WP		*531030 MSB6-1/2:C4:j3:l1-WP			*552938 MSB9-1:C2:j71:l9-WP									
*531029 MSB4-1/4:C4:j3:l1:l3-WP		*531030 MSB6-1/2:C4:j3:l1:l3-WP			*552938 MSB9-1:C2:j71:l9:l12-WP									
*531029 MSB4-1/4:C4:j3:l1:l3:L1-WP		*531030 MSB6-1/2:C4:j3:l1:l3:L4-WP			*552938 MSB9-1:C2:j71:l9:l12:L2-WP									
100	200	300	400	500	600	700	800	900	1,000					
*531029 MSB4-1/4:C4:j3:l1:l3:L1:G7-WP		*531030 MSB6-1/2:C4:j3:l1:l3:L4:G7-WP												
552170 PDAD-09	552171 PDAD-13	552172 PDAD-22	552173 PDAD-51			552174 PDAD-73		552175 PDAD-100			<p>Note: Please order 529607 MS6-LF-1/2-CRM and 532799 MS6-MV in addition to PDAD</p> 			

Pre-Configured Part Numbers Categorized by Air Quality

Ordering data – 3:4:2 complete assemblies

Size	Flow Rate (l/min)	Connection	Part No.	Type
MS4	360	G1/4	8032468	MSB4 3:4:2
MS6	2500	G1/2	8032469	MSB6 3:4:2
MS9	7800	G1	8032467	MSB9 3:4:2

Ordering data – 1:4:2 complete assemblies

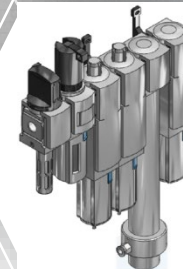
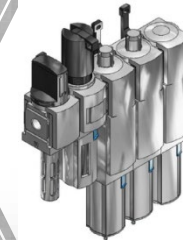
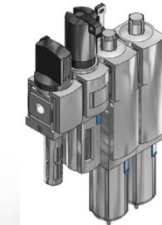
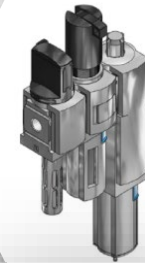
Size	Flow Rate (l/min)	Connection	Part No.	Type
MS4	360	G1/4	8031370	MSB4 1:4:2
MS6	2500	G1/2	8031373	MSB6 1:4:2
MS9	7800	G1	8031368	MSB9 1:4:2

Ordering data – 1:4:1 complete assemblies

Size	Flow Rate (l/min)	Connection	Part No.	Type
MS4	360	G1/4	8031372	MSB4 1:4:1
MS6	2500	G1/2	8031371	MSB6 1:4:1
MS9	6500	G1	8031374	MSB9 1:4:1

Ordering data – 1:3:1 complete assemblies

Size	Flow Rate (l/min)	Connection	Part No.	Type
MS4	100	G1/4	8031367	MSB4 1:3:1
MS6	400	G1/2	8031369	MSB6 1:3:1



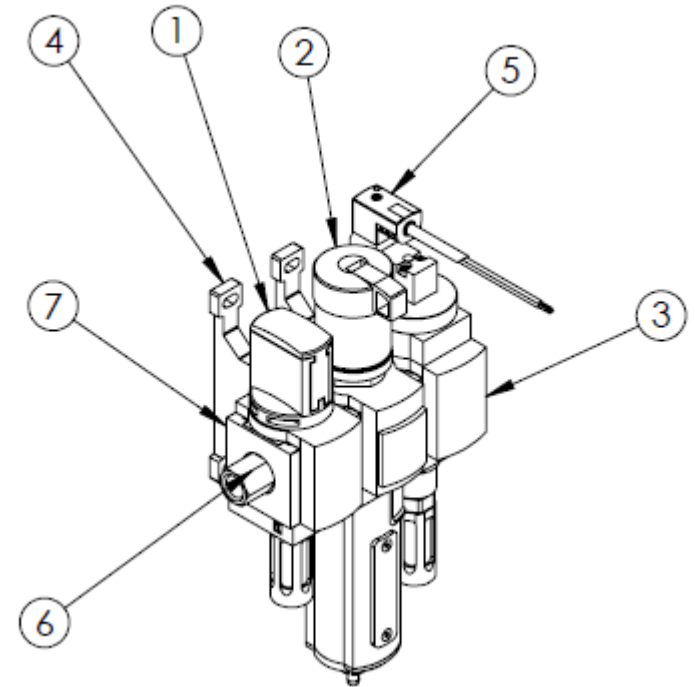
Available
in 1 to 3
days

Stock in
Mason
Ohio

Ordering data: Complete assemblies

Size	Flow rate(l/m)	Connection	Part No.	Type
Ms4	750	NPT 1/4	13095116	MSB4-1/4-3-ASY

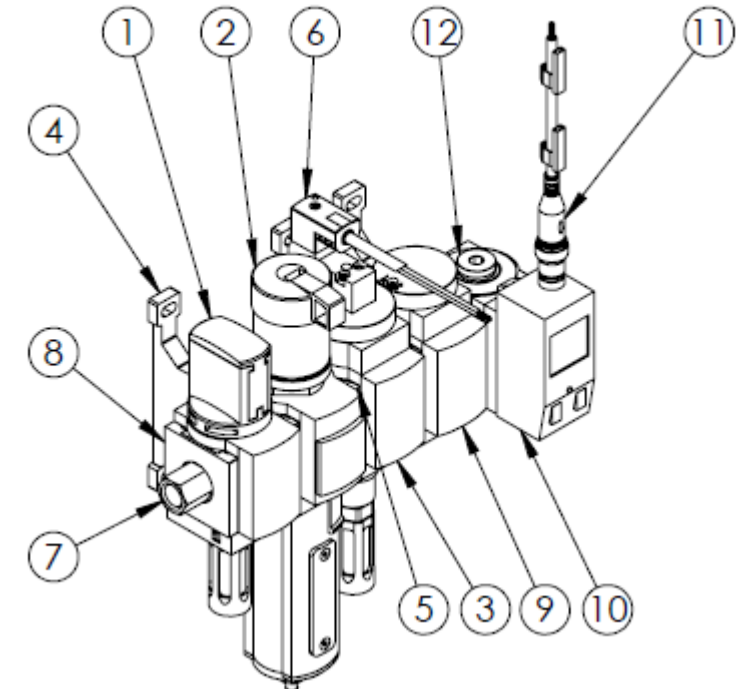
ITEM NO.	PartNo	DESCRIPTION	QTY.
1	541259	MS4-EM1-1/4-S - Manual On/off Valve	1
2	535724	MS4-LFR-1/4-D7-EUM-AS - Filter Regulator	1
3	542598	MS4-EE-1/4-10V24-S - Electrical On/off Valve	1
4	526063	MS4-WPB - Mounting Bracket	2
5	151689	KMEB-1-24-5-LED - Socket Connector Cable	1
6	9396	AD-1/4-1/4-NPT-I - Adapter	1
7	538779	MS4-END - Cover Cap	1



Ordering data: Complete assemblies

Size	Flow rate(l/m)	Connection	Part No.	Type
Ms4	750	NPT 1/4	13095117	MSB4-1/4-5-ASY

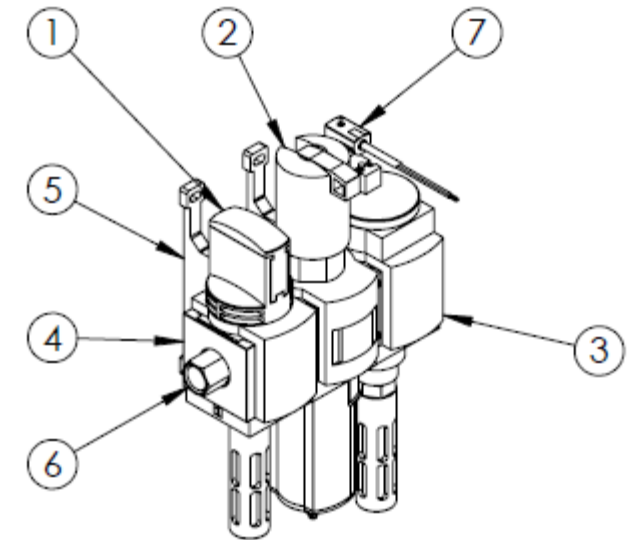
ITEM NO.	PartNo	DESCRIPTION	QTY.
1	541259	MS4-EM1-1/4-S - Manual On/off Valve	1
2	535724	MS4-LFR-1/4-D7-EUM-AS - Filter Regulator	1
3	542598	MS4-EE-1/4-10V24-S - Electrical On/off Valve	1
4	526063	MS4-WPB - Mounting Bracket	3
5	532798	MS4-MV - Module Connector	1
6	151689	KMEB-1-24-5-LED - Socket Connector Cable	1
7	9396	AD-1/4-1/4-NPT-I - Adapter	1
8	538779	MS4-END - Cover Cap	1
9	529531	MS4-DL-1/4 - Soft Start Valve	1
10	13122049	MS4-FRM-1/4-AD3 - Branching Module	1
11	541328	NEBU-M12G5-K-5-LE4 - Connection Cable	1
12	3569	B-1/4 - Blanking Plug	2



Ordering data: Complete assemblies

Size	Flow rate(l/m)	Connection	Part No.	Type
Ms6	3100	NPT 1/2	13095118	MSB6-1/2-3-ASY

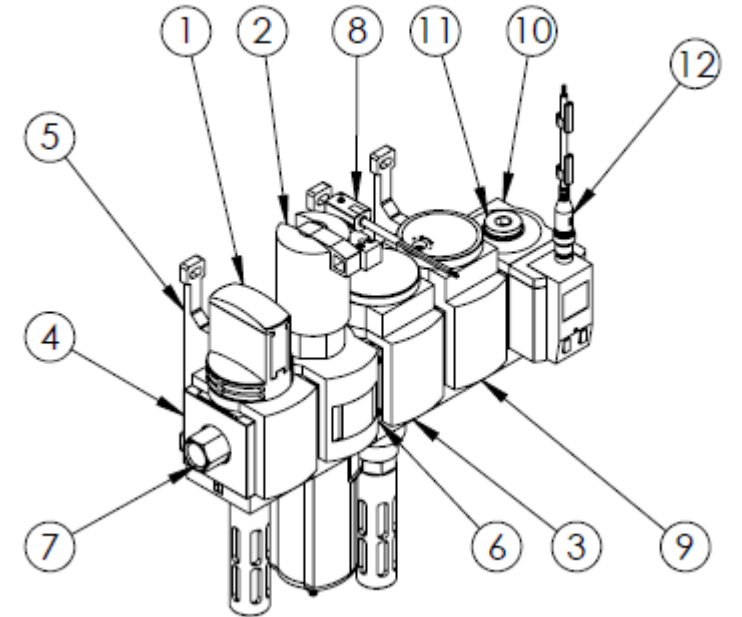
ITEM NO.	PartNo	DESCRIPTION	QTY.
1	541268	MS6-EM1-1/2-S - On/Off Valve	1
2	529192	MS6-LFR-1/2-D7-EUM-AS - Filter Regulator	1
3	542602	MS6-EE-1/2-10V24-S - On/Off Valve	1
4	538780	MS6-END - Cover Cap	1
5	526074	MS6-WPB - MOUNTING BRACKET	2
6	9398	AD-1/2-1/2-NPT-I - Adapter	1
7	151689	KMEB-1-24-5-LED - Socket Connector Cable	1



Ordering data: Complete assemblies

Size	Flow rate(l/m)	Connection	Part No.	Type
Ms6	3100	NPT 1/2	13095119	MSB6-1/2-5-ASY

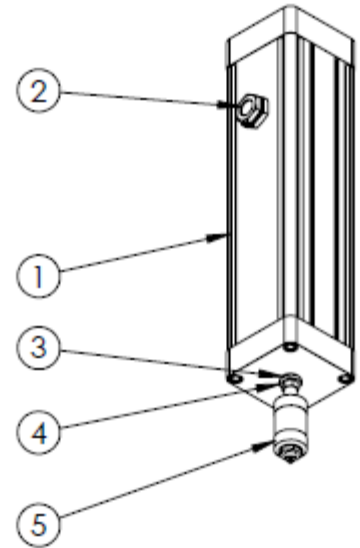
ITEM NO.	PartNo	DESCRIPTION	QTY.
1	541268	MS6-EM1-1/2-S - On/Off Valve	1
2	529192	MS6-LFR-1/2-D7-EUM-AS - Filter Regulator	1
3	542602	MS6-EE-1/2-10V24-S - On/Off Valve	1
4	538780	MS6-END - Cover Cap	1
5	526074	MS6-WPB - MOUNTING BRACKET	3
6	532799	MS6-MV - MODULE CONNECTOR	1
7	9398	AD-1/2-1/2-NPT-I - Adapter	1
8	151689	KMEB-1-24-5-LED - Socket Connector Cable	1
9	529817	MS6-DL-1/2 - Soft Start Valve	1
10	13110201	MS6-FRM-1/2-AD3 - Branching Module	1
11	3571	B-1/2 - Blanking plug	2
12	541328	NEBU-M12G5-K-5-LE4 - Connection Cable	1



Ordering data: Complete assemblies

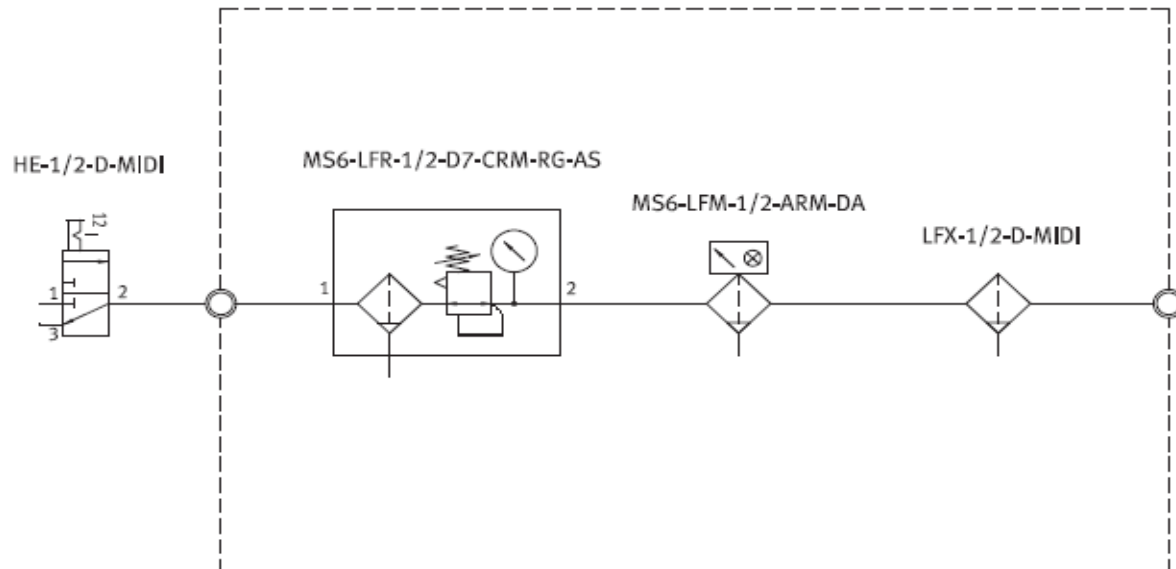
Size	Flow rate(l/m)	Connection	Part No.	Type
Ms6	3100	NPT 1/2	CA_CS.2029486	Auto Drain Drip Leg

ITEM NO.	PartNo	Description	QTY.
1	13013303	DNC-100-3/4-SA - DRIP LEG ASY	1
2	3588	D-1/2I-3/4A - Reducing nipple	1
3	531773	OK-3/8 - SEALING RING	1
4	2029486-001	B-3/8-SA - Blanking plug	1
5	152810	WA-2 - Auto Drain	1

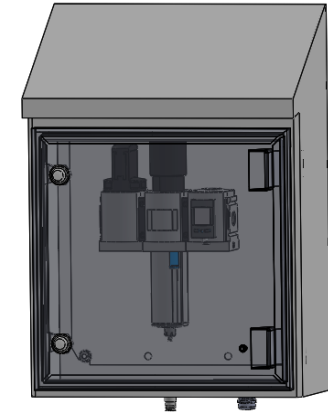
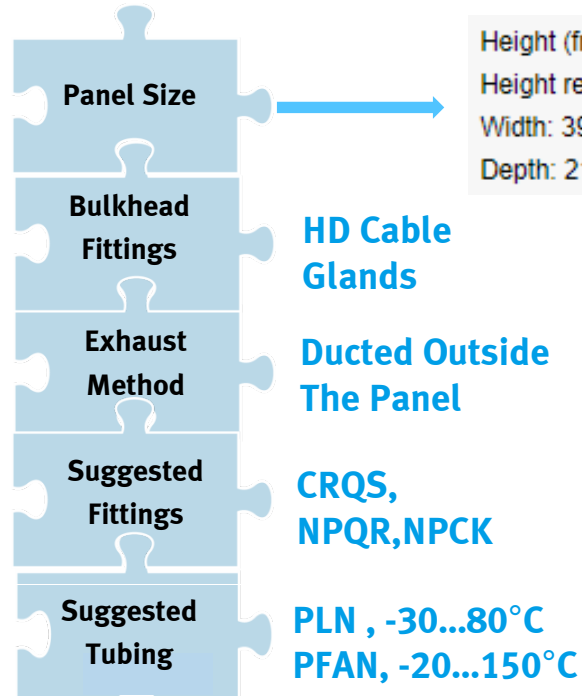
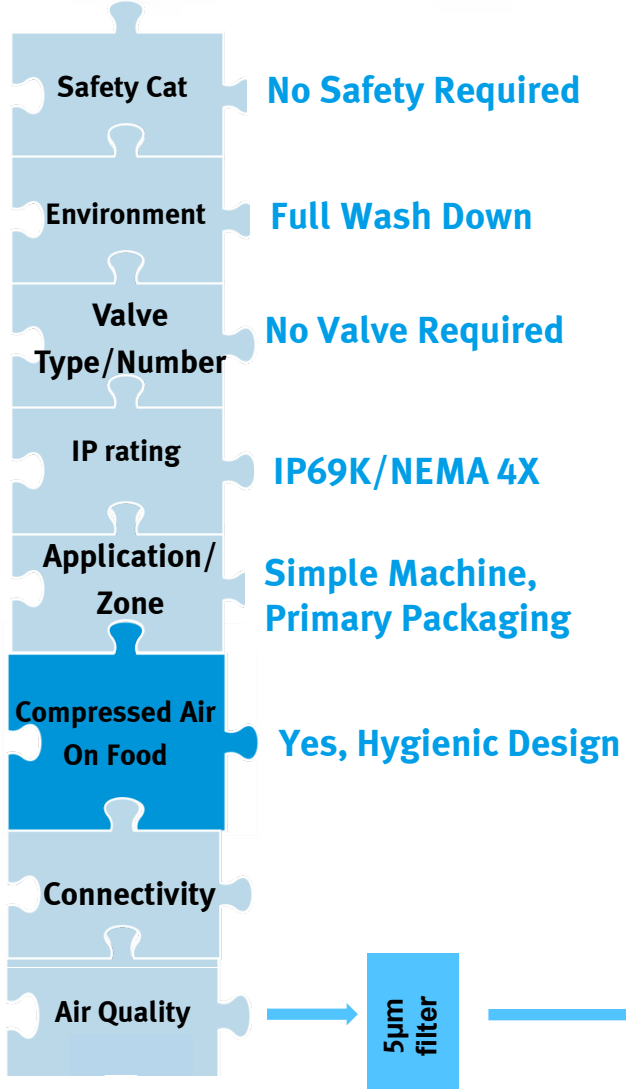


Reference No. CA_CS.2004184

Product	Features	Benefits
<ul style="list-style-type: none"> • Non-interchangeable filters that are in sequence (5 μm, 0.1 μm, 0.01 μm with activated carbon filter– left to right) • NEMA 4X 304 SS enclosure with viewing window 	<ul style="list-style-type: none"> • Back plate painted in bright red for inspection purposes • Pre-configured • One part number • Complies with DIN ISO 8573-1:2010 	<ul style="list-style-type: none"> • Built complete • In stock/ready to ship • Clean air solution • Semi-conductor (clean room) • No risk of contamination

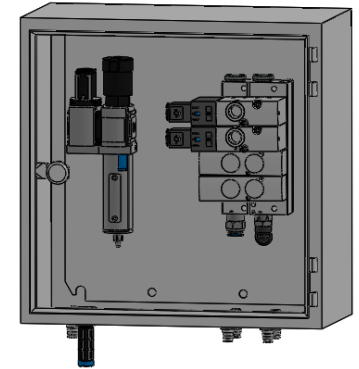
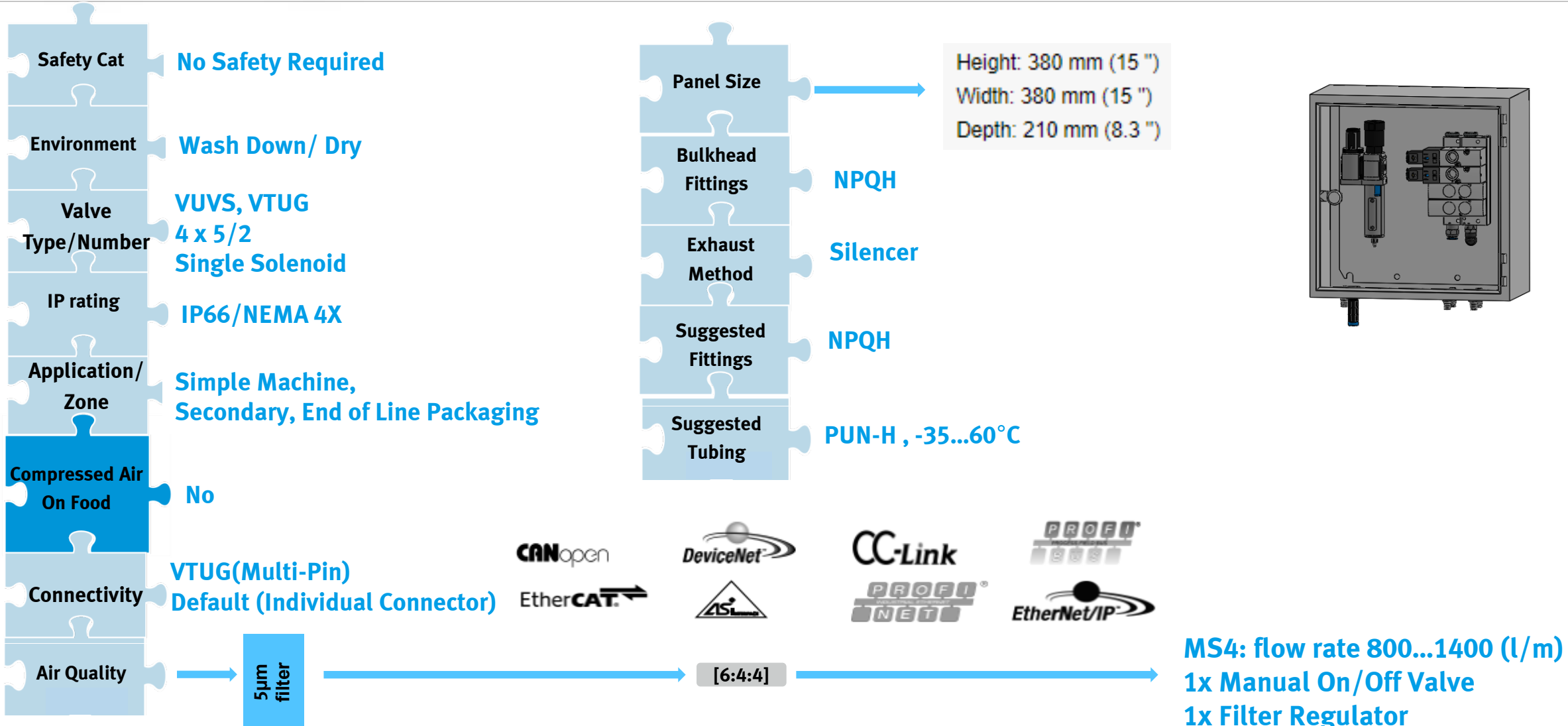


Reference No. 23247488

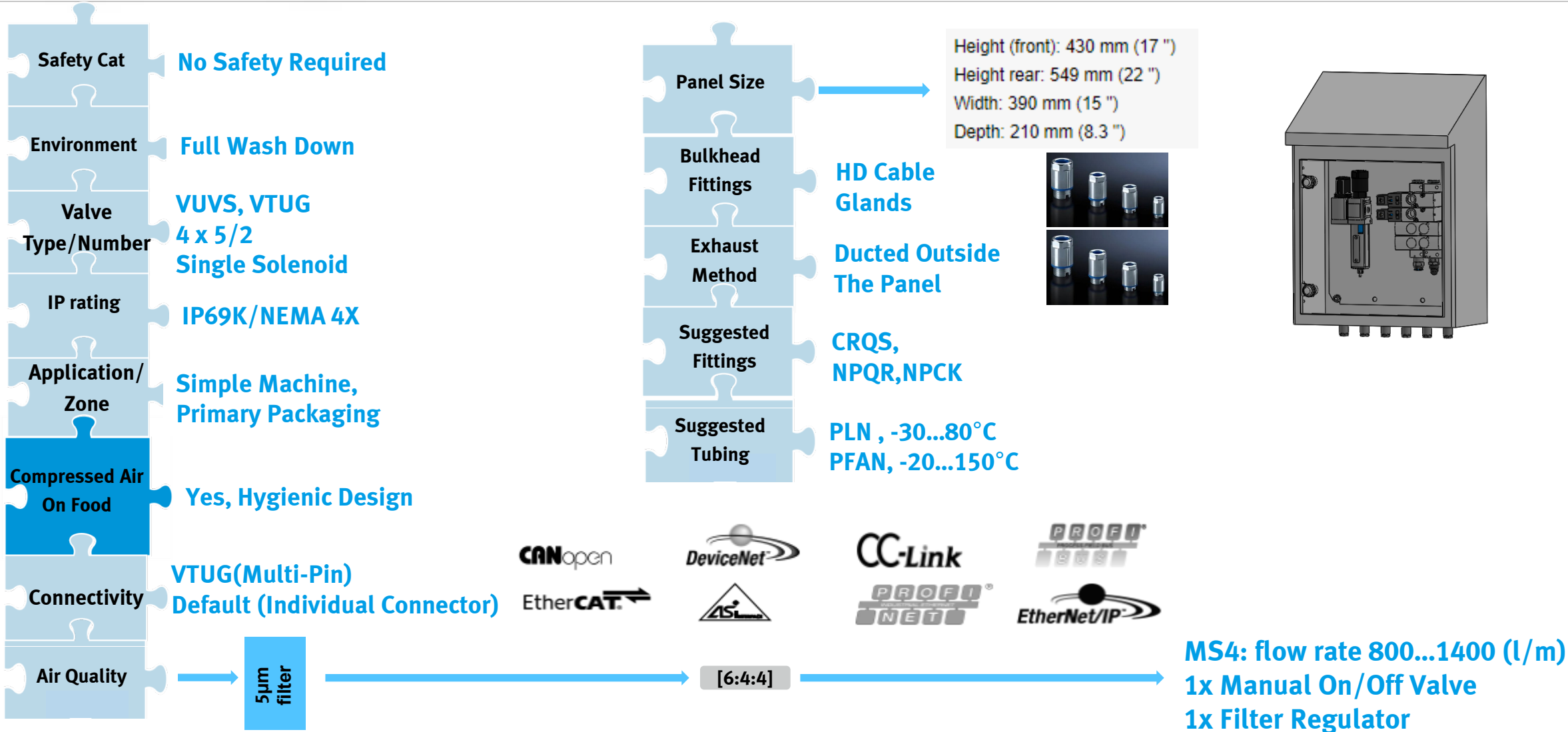


MS6: flow rate 1700...4800 (l/m)
1x Manual On/Off Valve
1x Filter Regulator
1x Branching Module with SPAU sensor

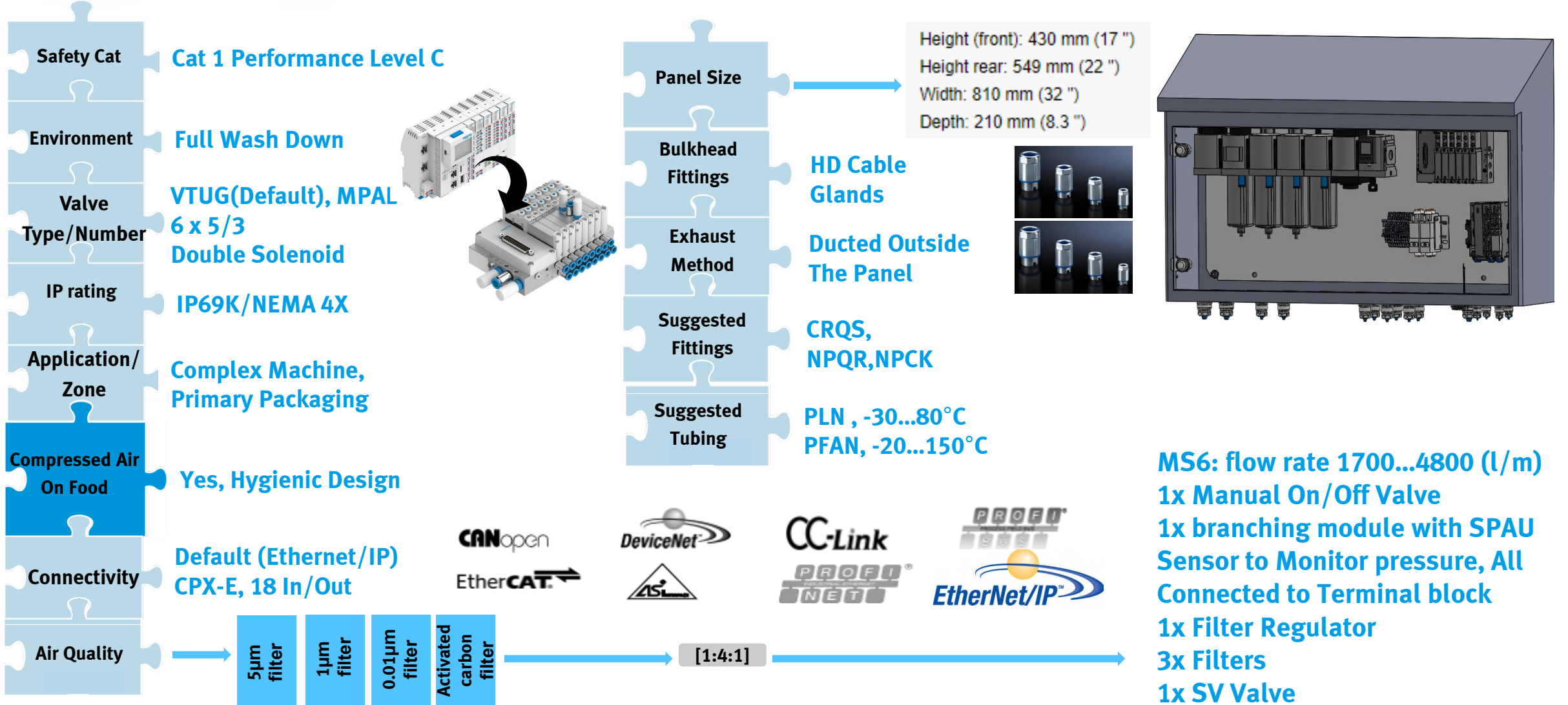
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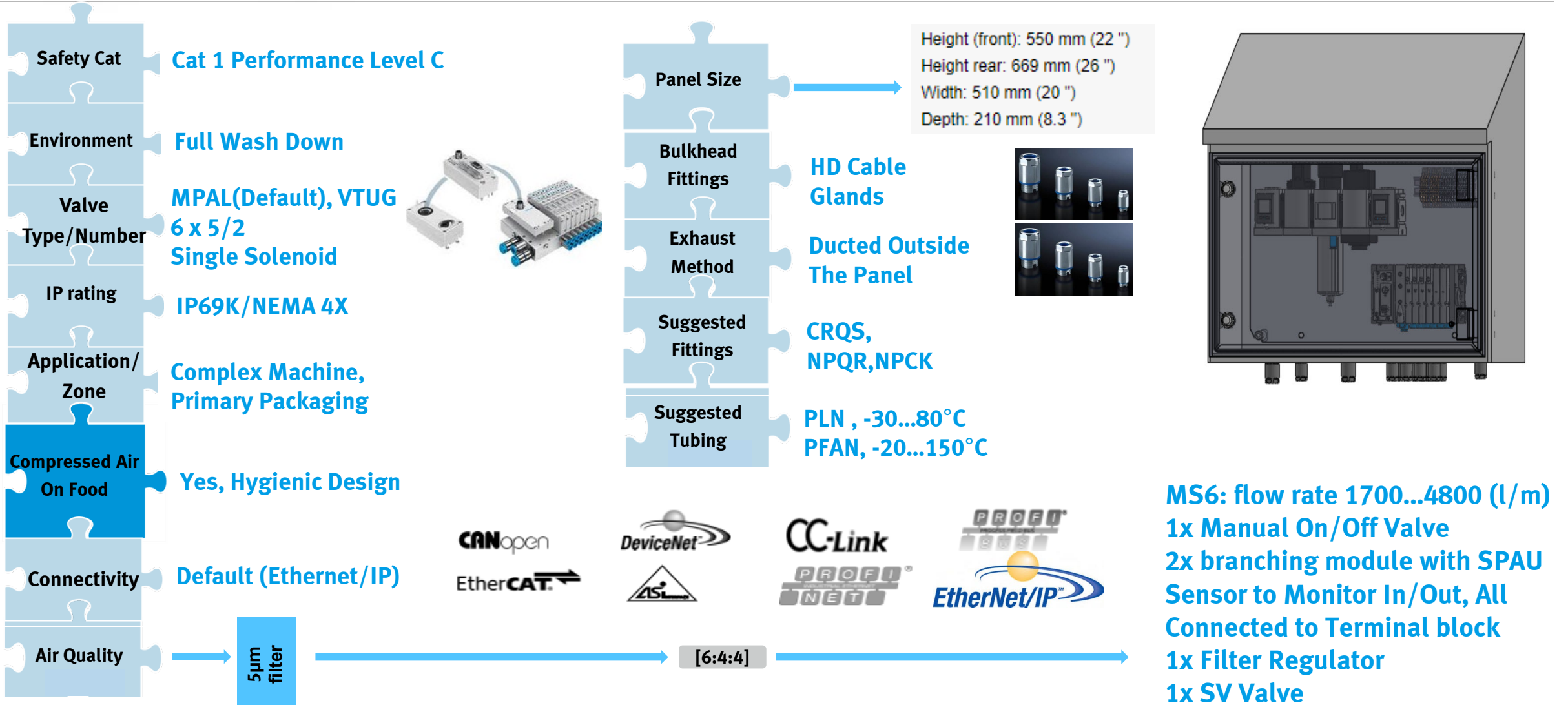
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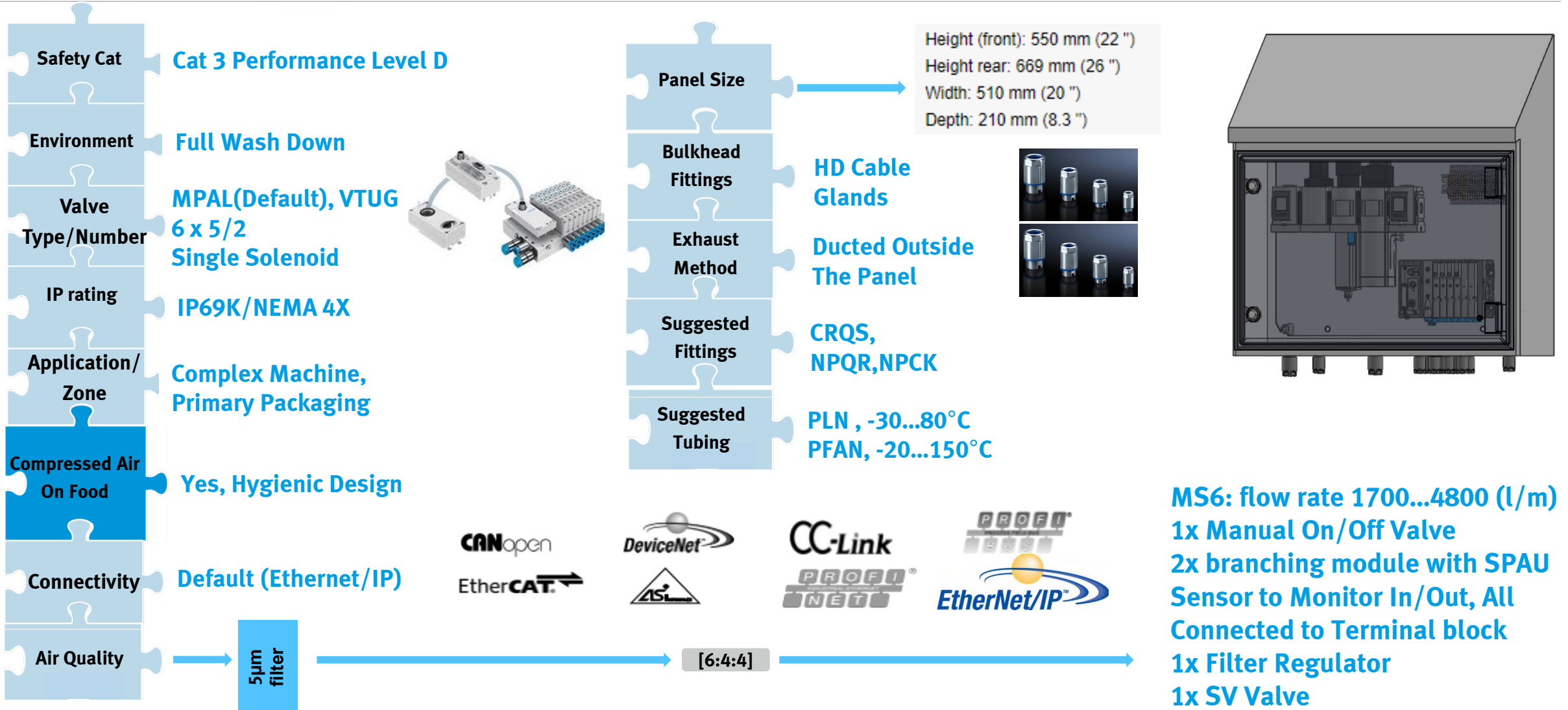
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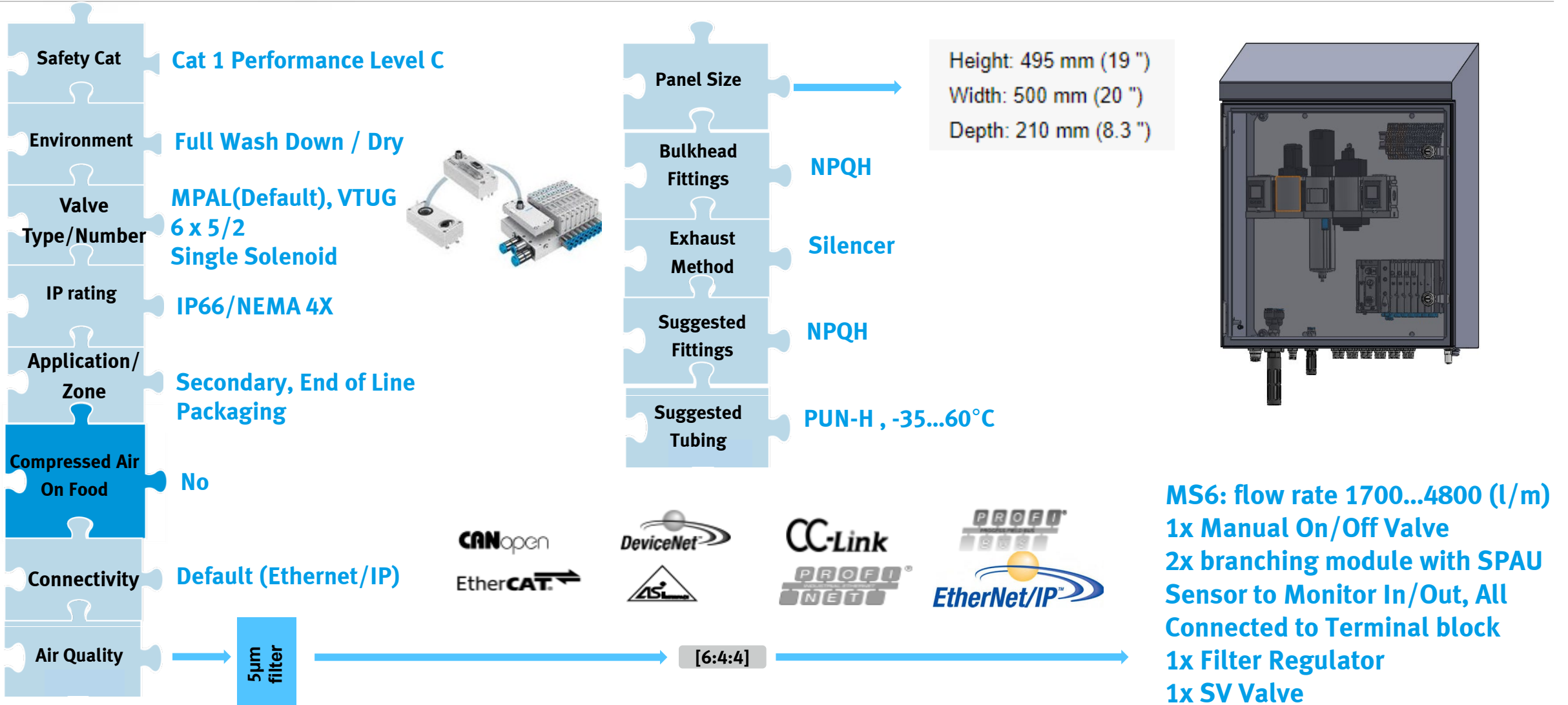
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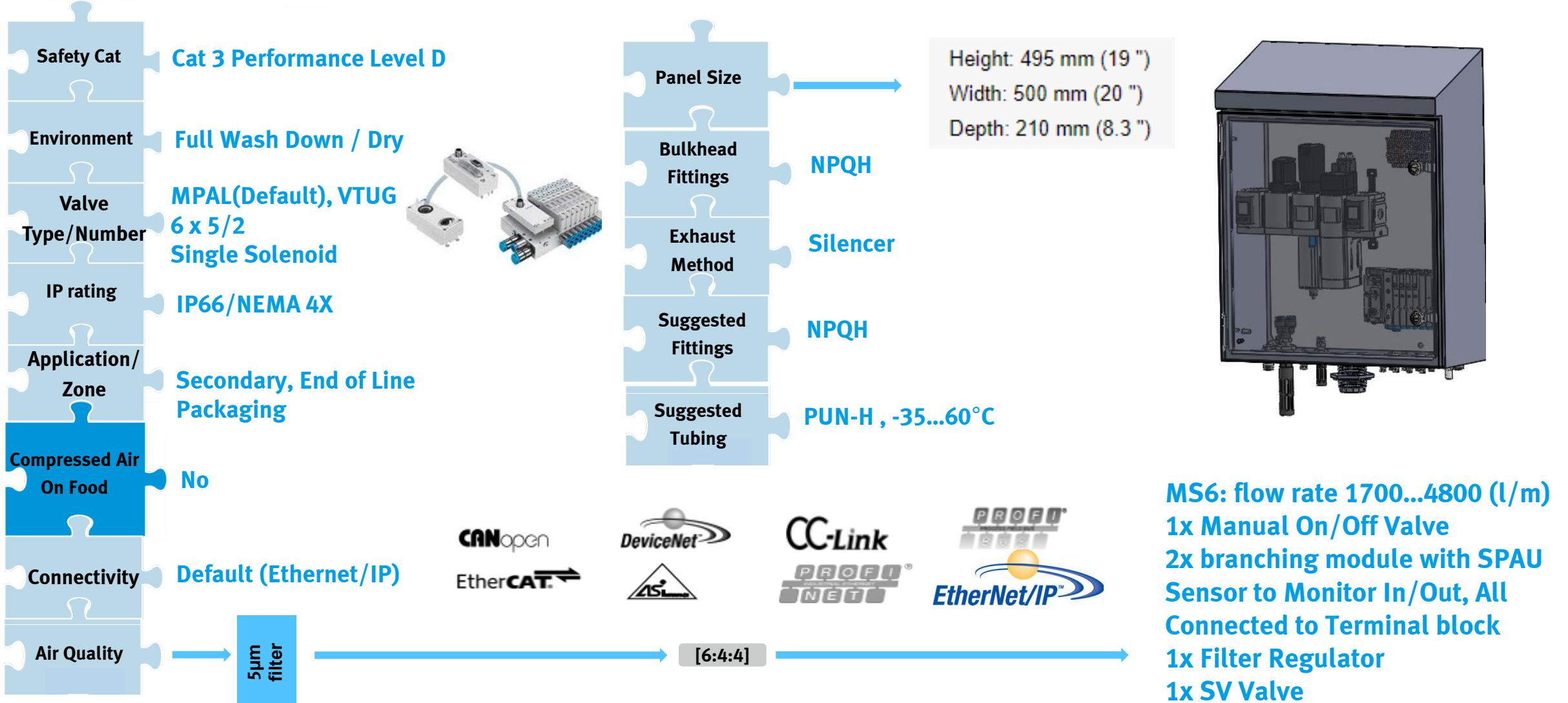
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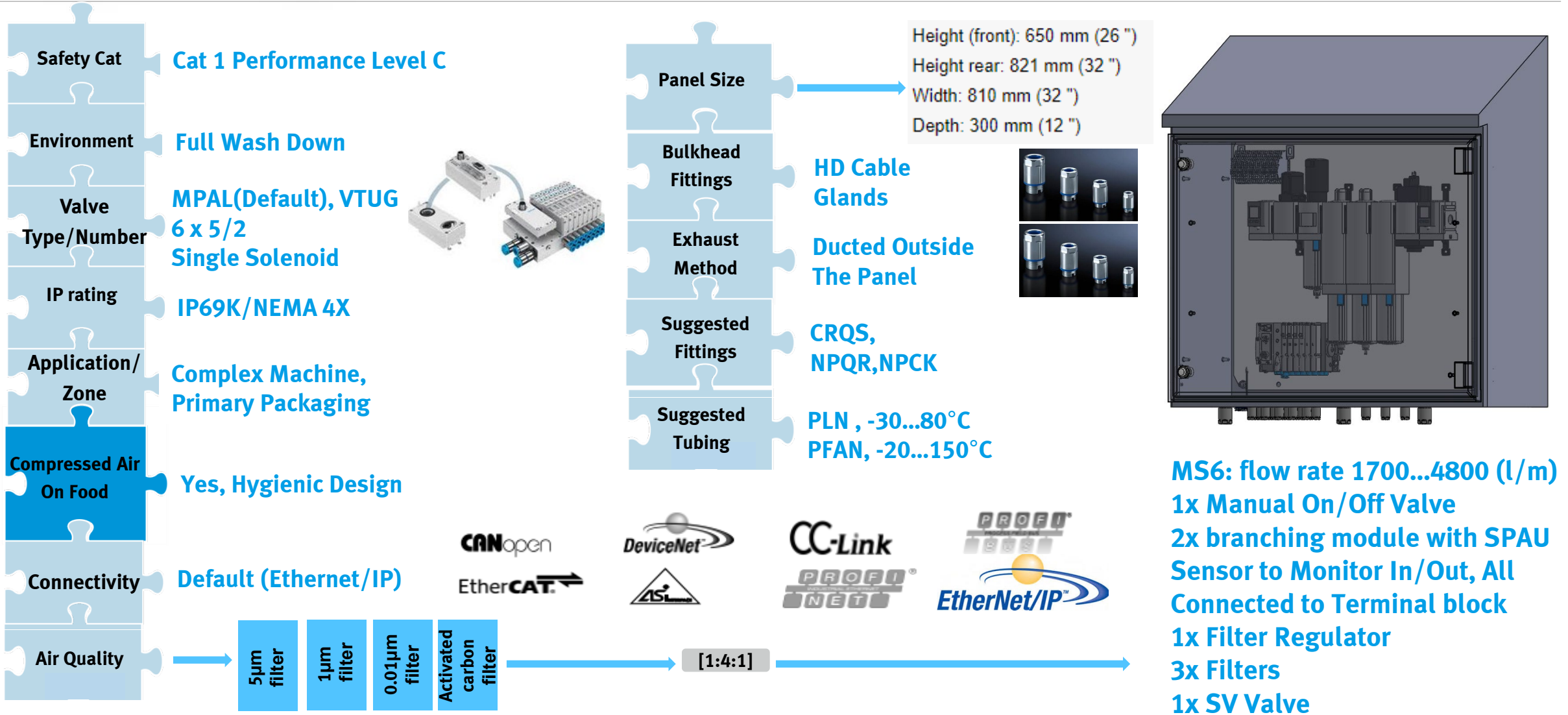
Reference No. 23243756



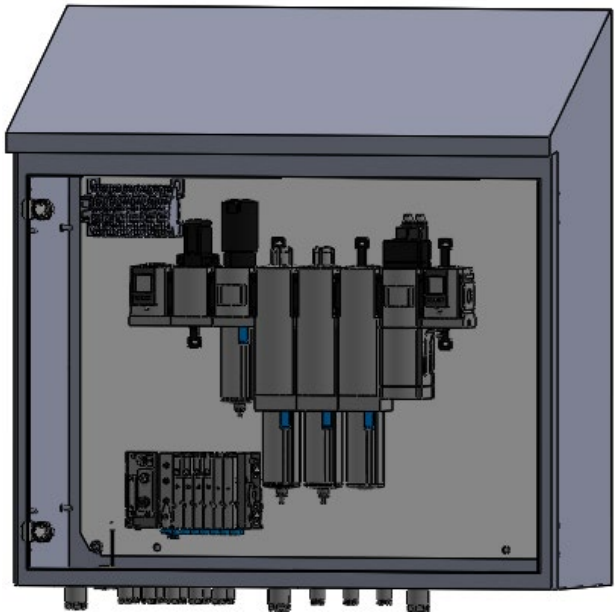
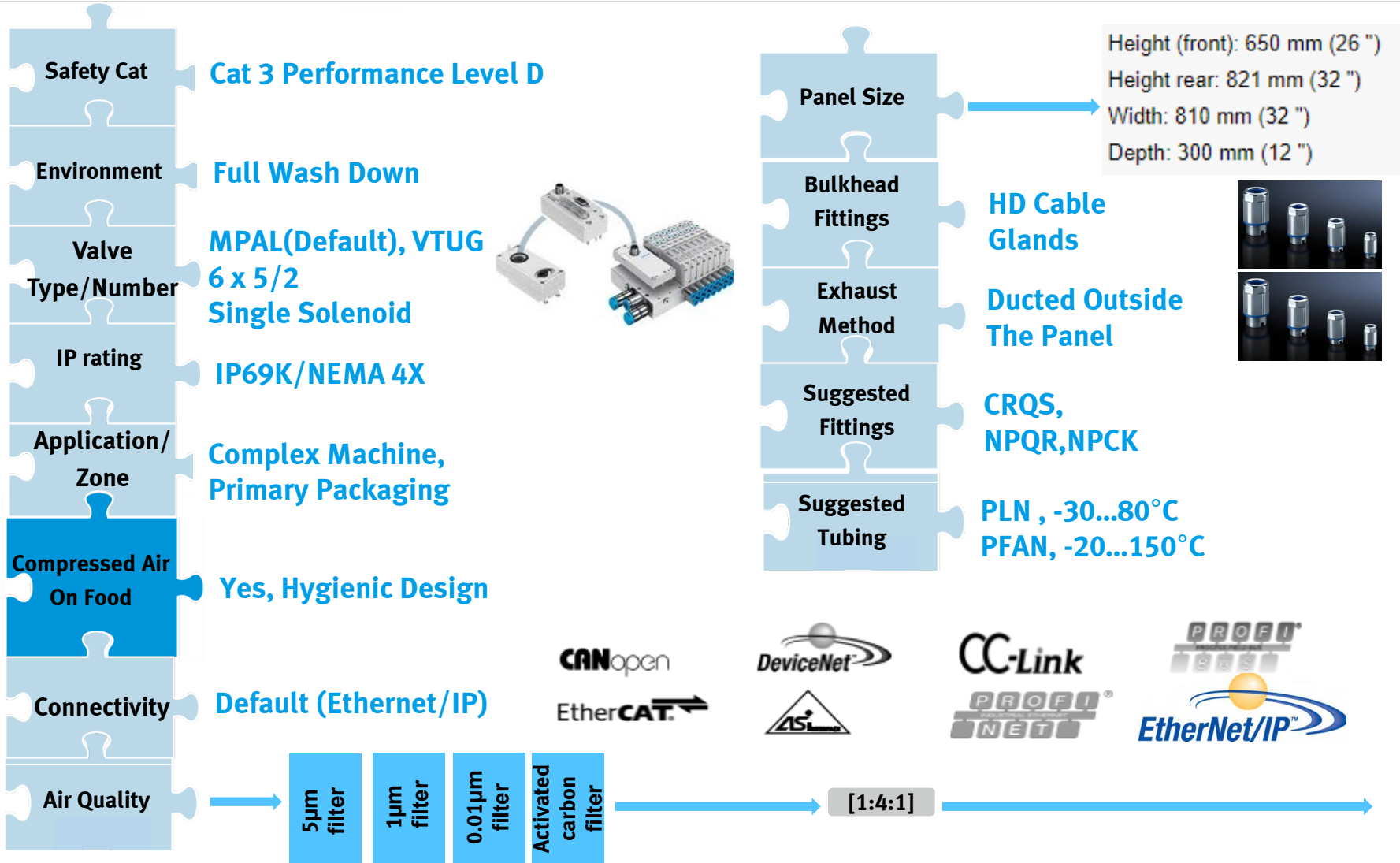
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Reference No. 23243758



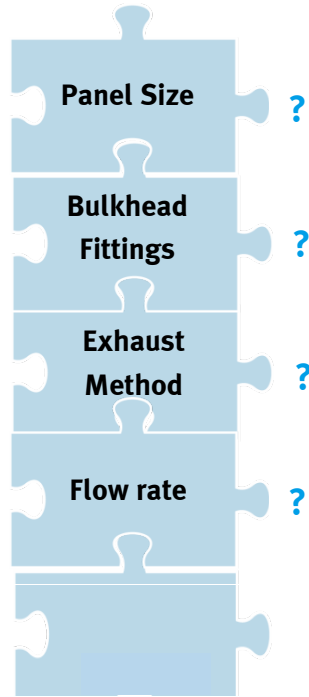
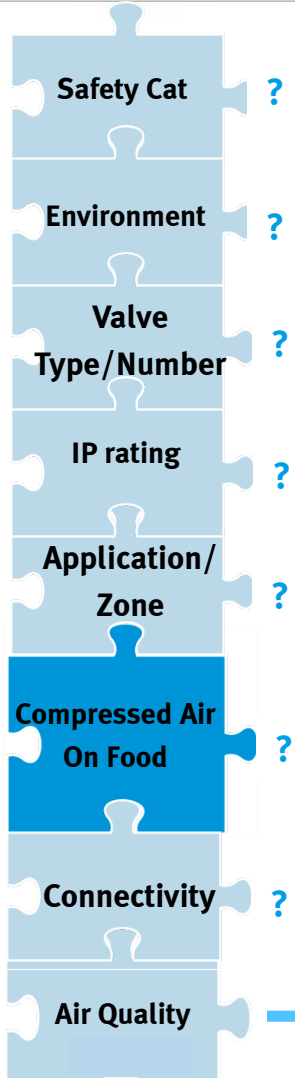
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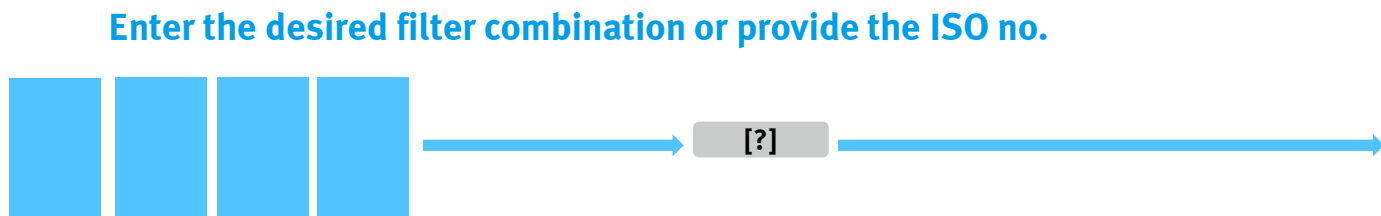
- MS6: flow rate 1700...4800 (l/m)
- 1x Manual On/Off Valve
- 2x branching module with SPAU
- Sensor to Monitor In/Out, All Connected to Terminal block
- 1x Filter Regulator
- 3x Filters
- 1x SV Valve



Check List



Need your own configuration :
Simply fill out the check list and get your quotation in less than 24h



Enter your desired air prep combination

- 1x
- 1x
- 1x
- 1x
- 1x