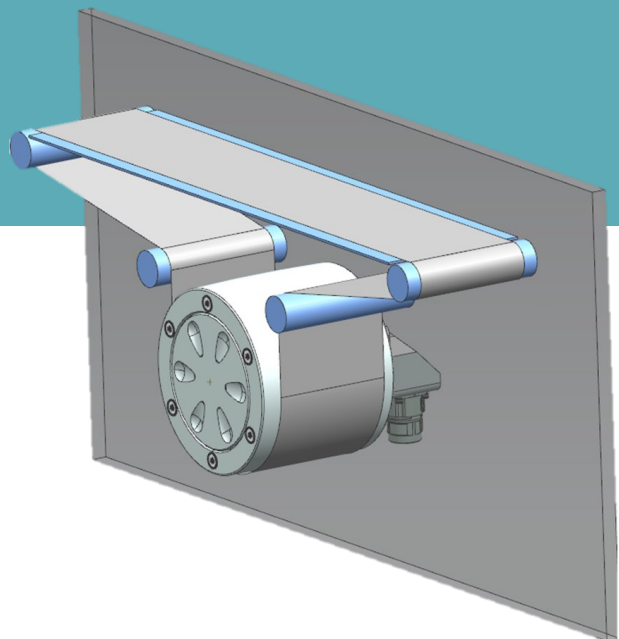


# DIRECT DRIVE BELT MOTORS

**SBM125 & DBM125**

**An easy to install direct drive motor.  
Small, low maintenance and low  
energy consumption**



Increase the overall performance and quality of your systems with the direct drive motor technology of Magnetic Innovations.

## BELT DRIVE | INFEEED CONVEYOR BELT MOTOR

The Belt Drive Servomotor series SBM125 and the Belt Drive Sensorless Motor series DBM125, are a new generation of single side mounted (Balcony mount) 3-phase AC-Synchronous PM Servo motors specifically designed for High Dynamic Smart applications. Typical applications include Smart infeed conveyor belt systems, indexing tables and dynamic sorter applications.

### Belt Motors features:

- Unique formfactor to enable compact belt systems.
- Fast response to load and/or position variations.
- High position accuracy.
- *Direct-Drive* technology.
- No gears or external gearbox (no oil or grease).
- Zero motor maintenance.
- Zero backlash.
- Easy conveyor belt swap due to single side mount.
- Horizontal, vertical and diagonal mounting capability.
- Single turn absolute encoder (SBM125).
- Available encoder protocols (SBM125):
  - Absolute Sine/Cosine 1Vpp
  - Absolute BiSS (RS422)
  - Absolute SSi (RS422)
  - Incremental ABZ (RS422)
- Easily removable and adaptable HUB geometry for custom crowning or lagging.
- UL approval pending.
- Compatible with industry standard 3-phase Motor drives.



# SBM125

# Belt Drive

# Servomotor



## SBM125 Performance Data and Motor parameters

Parameter	Symbol	Units	SBM125-103	SBM125-140	Comment
Nominal Hub width	w	mm	103	140	
		in	4.05	5.51	
Nominal Hub dia.	Ø	mm	125	125	
		in	4.92	4.92	
Continuous Torque	T <sub>c</sub>	Nm	3,5	8	
		oz-in	496	1133	
Peak Torque	T <sub>p</sub>	Nm	7	16	@ 15% duty cycle
		oz-in	992	2266	
Maximum Torque	T <sub>max.</sub>	Nm	9	24	Short time overload
		oz-in	1275	3399	
Rated speed	n cont.	rpm	300	300	
Maximum rotation speed	n max.	rpm	650	500	
Rated Belt speed	V <sub>b</sub>	m/s	2	2	@ 125mm Hub outer diameter
		ft/min	394	394	
Max. Belt Speed	V <sub>b max.</sub>	m/s	3	3	@ 125mm Hub outer diameter
		ft/min	591	591	
DC Bus Voltage	V <sub>bus</sub>	V <sub>dc</sub>	325	325	Based upon single phase rectified 230Vac
Continuous Current	I <sub>c</sub>	A <sub>pk</sub>	1.4	2.7	
Peak Current	I <sub>p</sub>	A <sub>pk</sub>	3.3	5.5	@ rated Peak Torque
Maximum current	I <sub>max.</sub>	A <sub>pk</sub>	4.5	9.8	@ rated Maximum Torque
K <sub>m</sub> constant	K <sub>m</sub>	Nm/A <sub>pk</sub>	2.2	3.0	
K <sub>emf</sub> constant	K <sub>emf</sub>	V <sub>pk</sub> /rpm	0.265	0.365	
Phase Inductance	L <sub>ph</sub>	mH	40	33.5	
Phase resistance	R <sub>ph</sub>	Ohms	5.9	4	@ 20°C
Encoder resolution		Counts/rev	1024-4096	1024-4096	Supported interface protocols: - Absolute Sine/Cosine 1V <sub>pp</sub> - Absolute BiSS or SSI (RS422) - Incremental ABZ (RS422)
Rotor Inertia without sleeve	J	Kg-m <sup>2</sup>	0.00324	0.00484	
		oz-in-s <sup>2</sup>	0.459	0.685	
Rotor Inertia with crowned sleeve	J	Kg-m <sup>2</sup>	0.0047	0.00678	
		oz-in-s <sup>2</sup>	0.666	0.96	
Weight	W <sub>t</sub>	Kg	3.8	5.4	
		oz.	134	190	
Power	P	W	476	838	
		hp	0.64	1.12	
Pole pairs			7	7	

Note:

Customization is possible. Please contact Magnetic Innovations for more information.

## SMB125 Connector configuration

### Power Connector

Pin #	Function
A	Motor Phase U
B	Motor Phase V
C	Motor Phase W
D	PE
E	PT100 (+)
F	PT100 (-)
G	Not Connected
H	Not Connected
I	Not Connected



### Signal connector

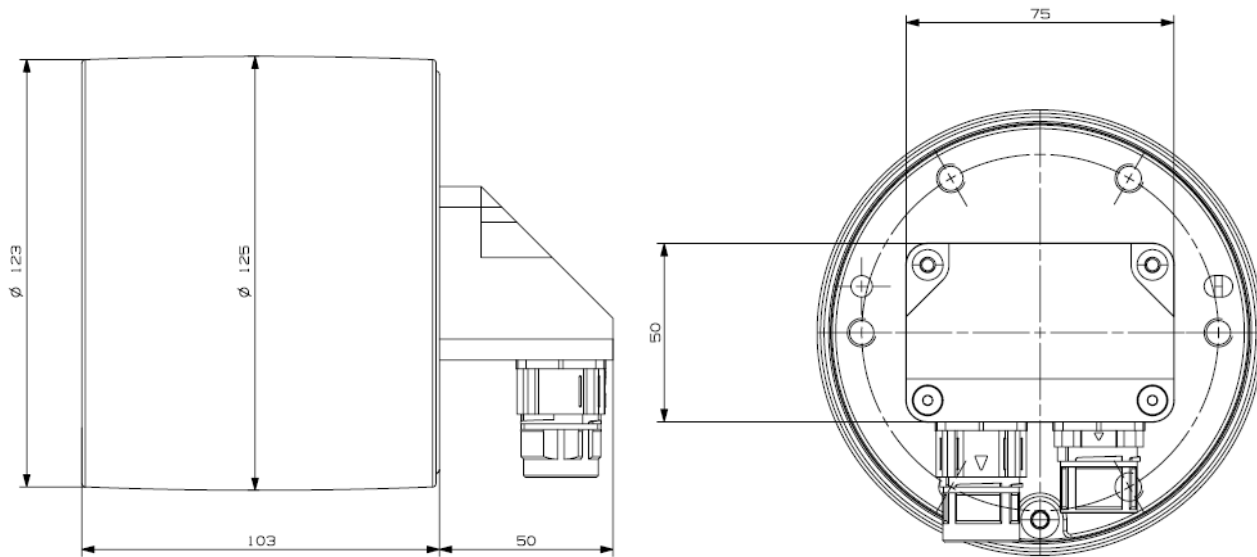
Pin #	Function	Pin #	Function
1	V supply (+)	10	(SLO) BiSS/SSi Clock in (-)
2	Ground	11	Z (+)
3	Sin (+)	12	Z (-)
4	Sin (-)	13	B (+)
5	Cos (+)	14	B (-)
6	Cos (-)	15	A (+)
7	(SLO) BiSS/SSi Data in (+)	16	A (-)
8	(SLO) BiSS/SSi Data in (-)	17	proprietary
9	(MA) BiSS/SSi Clock in (+)		



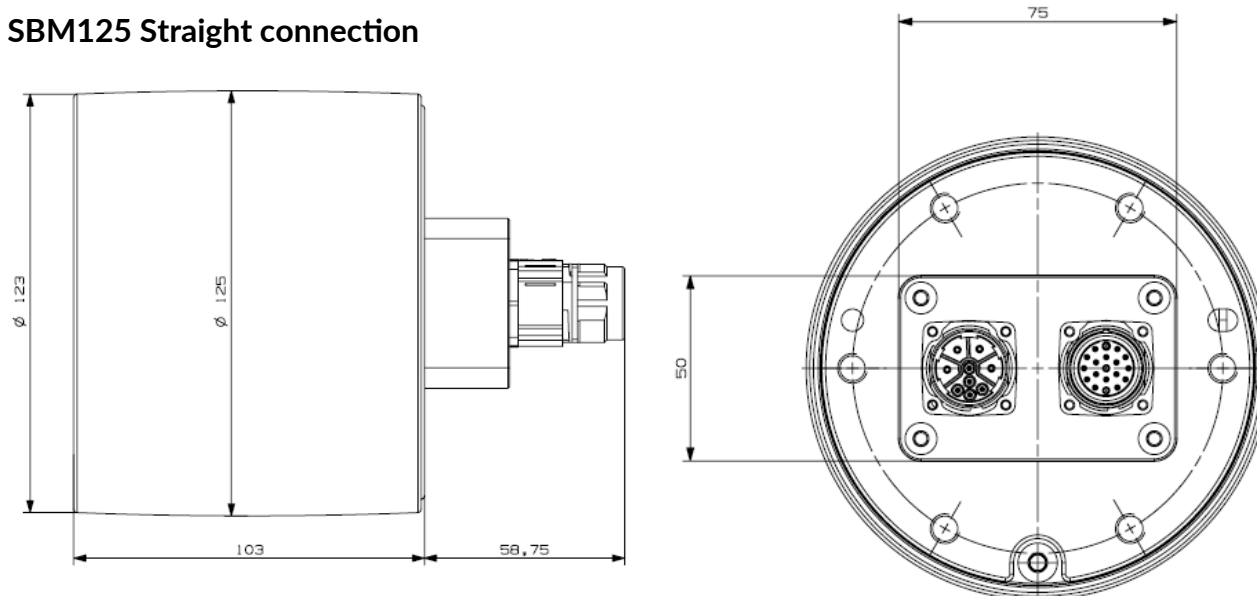
## SBM125 Series Outline drawings

1. All dimensions are in mm.
2. Receptacles:  
Power: Speedtec® M23 9-pin E (3+PE+5) Intercontec series 923  
Signal: Speedtec® M23 17-pin E uncoded Intercontec series 623
3. CAD files can be made available on request.

### SBM125 Right-angle connection

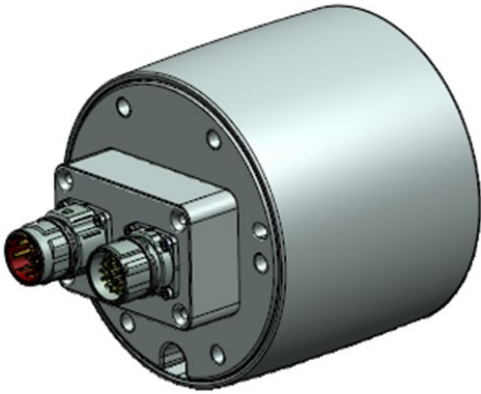


### SBM125 Straight connection

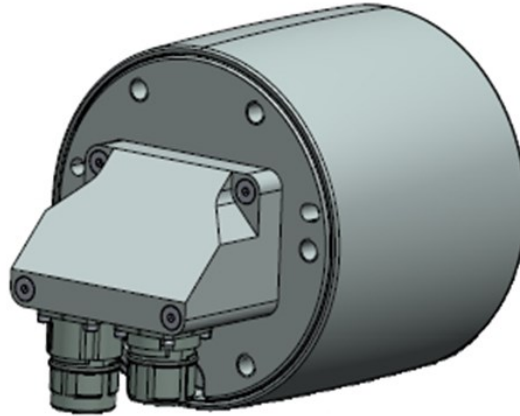


Model Number	"A" (mm)
SBM125-103	103.0 ±0.25
SBM125-140	140.0 ±0.25

## SBM125 Connection options

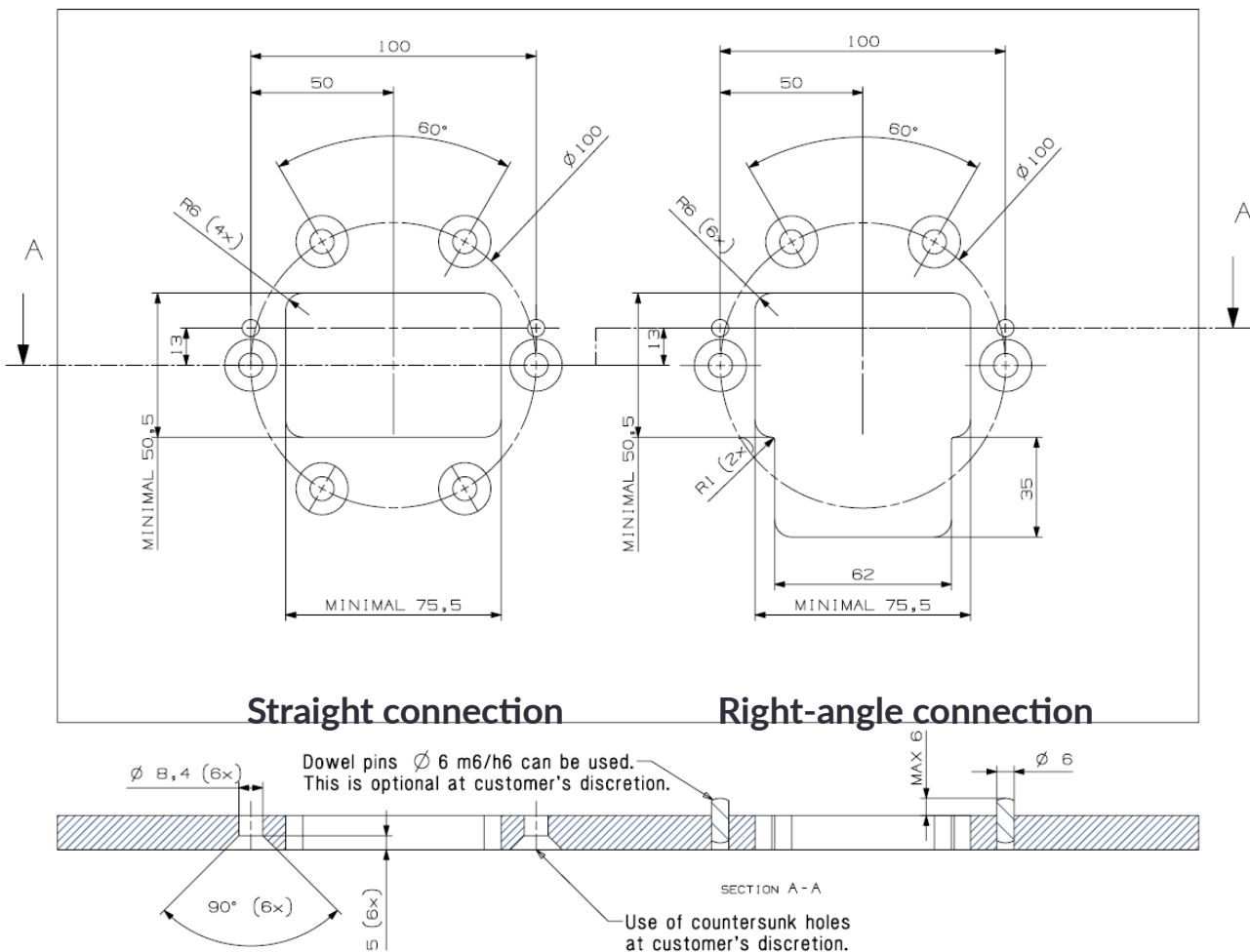


Straight connection



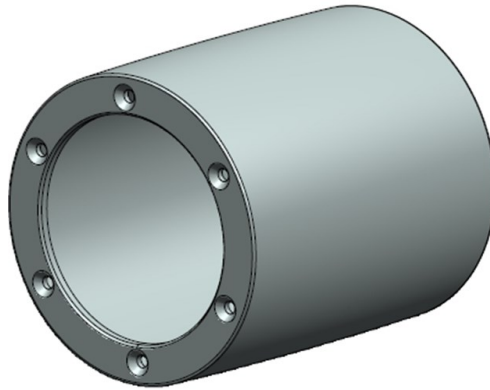
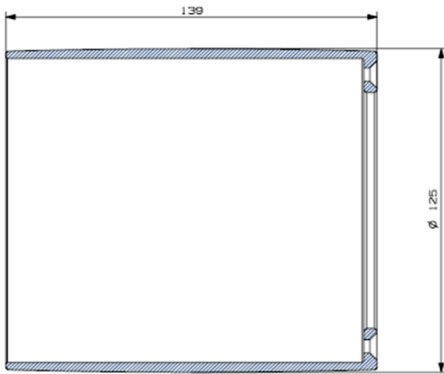
Right-angle connection

## Mounting plate cutout



## Sleeve / Interface

All Alternative sleeve variations like Cogged, V-groove, surface lagging or any other surface configuration as well as extended length sleeves, can be made available.

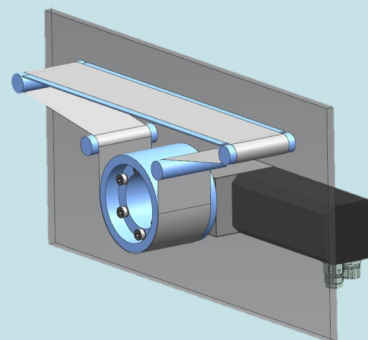


Model Number	"A" (mm)
SLV125-103-000	102.0 ±0.25
SLV125-140-000	139.0 ±0.25

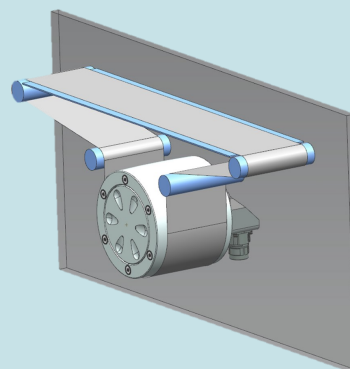
## Application Example

### Smart infeed belt conveyor

Balcony mounted Smart belt with traditional motor & gearbox hanging on the side of the construction.



Balcony mounted Smart belt with **SBM125** or **DBM125** *Direct Drive* Belt Motor integrated into the construction.





# DBM125

# Belt Drive

# Sensorless



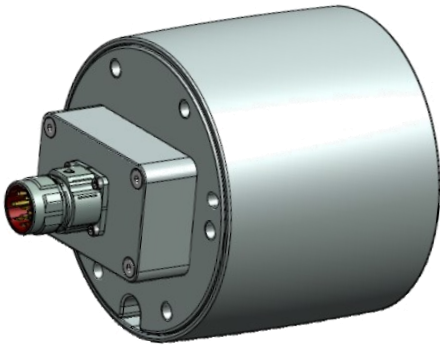
## DBM125 Performance Data and Motor parameters

Parameter	Symbol	Units	DBM125-103	DBM125-140	Comment
Nominal Hub width	w	mm	103	140	
		in	4.05	5.51	
Nominal Hub dia.	Ø	mm	125	125	
		in	4.92	4.92	
Continuous Torque	Tc	Nm	3,5	8	
		oz-in	496	1133	
Peak Torque	Tp	Nm	7	16	@ 15% duty cycle
		oz-in	992	2266	
Maximum Torque	Tmax.	Nm	9	24	Short time overload
		oz-in	1275	3399	
Rated speed	n cont.	rpm	300	300	
Maximum rotation speed	n max.	rpm	650	500	
Rated Belt speed	Vb	m/s	2	2	@ 125mm Hub outer diameter
		ft/min	394	394	
Max. Belt Speed	Vb max.	m/s	3	3	@ 125mm Hub outer diameter
		ft/min	591	591	
DC Bus Voltage	Vbus	Vdc	325	325	Based upon single phase rectified 230Vac
Continuous Current	Ic	Apk	1.4	2.7	
Peak Current	Ip	Apk	3.3	5.5	@ rated Peak Torque
Maximum current	Imax.	Apk	4.5	9.8	@ rated Maximum Torque
K_m constant	K_m	Nm/Apk	2.2	3.0	
K_emf constant	K_emf	Vpk/rpm	0.265	0.365	
Phase Inductance	Lph	mH	40	33.5	
Phase resistance	Rph	Ohms	5.9	4	@ 20°C
Rotor Inertia without sleeve	J	Kg-m <sup>2</sup>	0.00324	0.00484	
		oz-in-s <sup>2</sup>	0.459	0.685	
Rotor Inertia with crowned sleeve	J	Kg-m <sup>2</sup>	0.0047	0.00678	
		oz-in-s <sup>2</sup>	0.666	0.96	
Weight	Wt	Kg	3.8	5.4	
		oz.	134	190	
Power	P	W	476	838	
		hp	0.64	1.12	
Pole pairs			7	7	

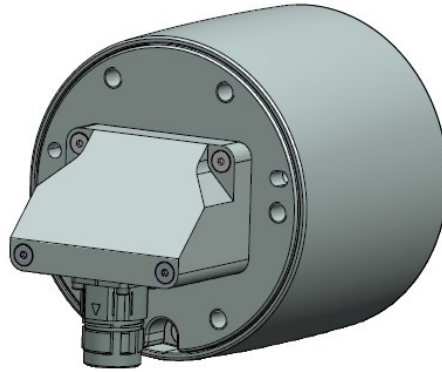
Note:  
Customization is possible. Please contact Magnetic Innovations for more information.

## DBM 125 Connection configurations

### Connection options



Straight connection



Right-angle connection

### Power Connector

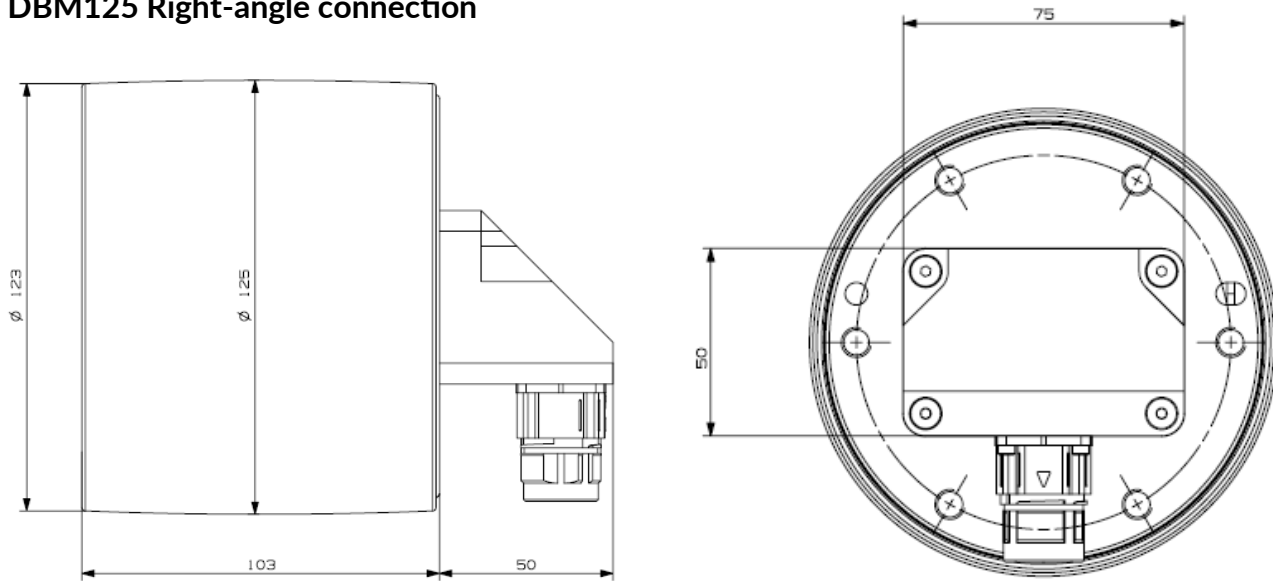
Function	Pin #
Motor Phase U	A
Motor Phase V	B
Motor Phase W	C
PE	D
PT100 (+)	E
PT100 (-)	F
Not Connected	G
Not Connected	H
Not Connected	I



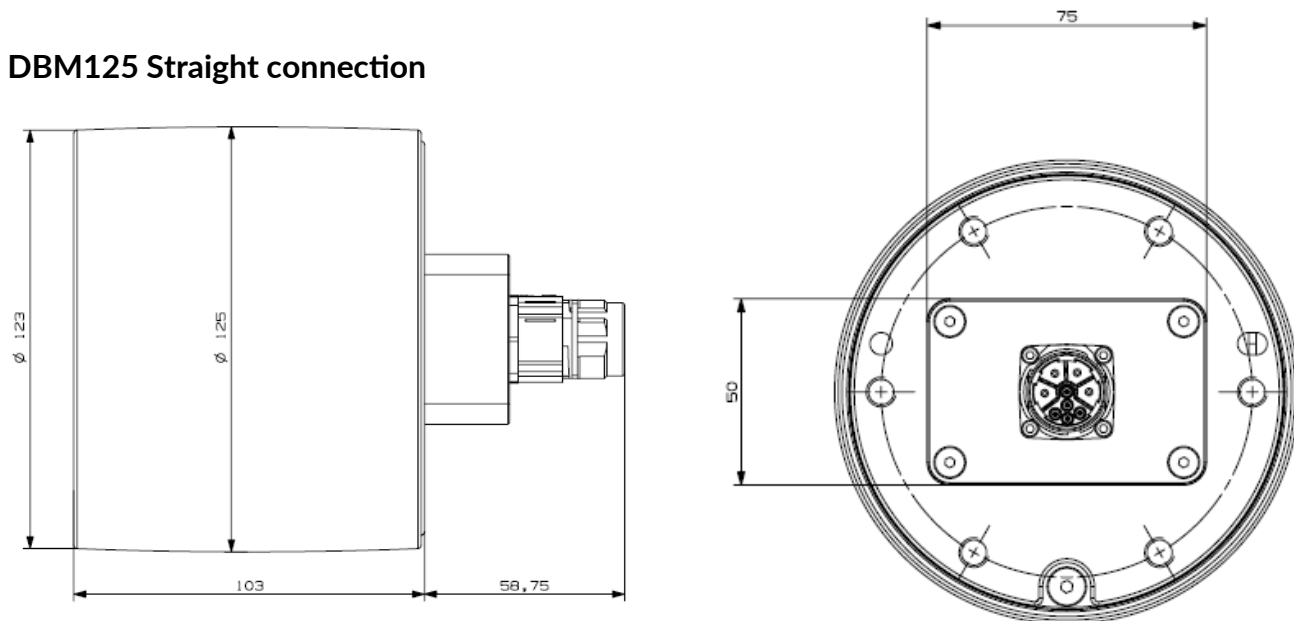
## DBM125 Series Outline drawings

1. All dimensions are in mm.
2. Receptacles:  
Power: Speedtec® M23 9-pin E (3+PE+5) Intercontec series 923.
3. CAD files can be made available on request.

### DBM125 Right-angle connection

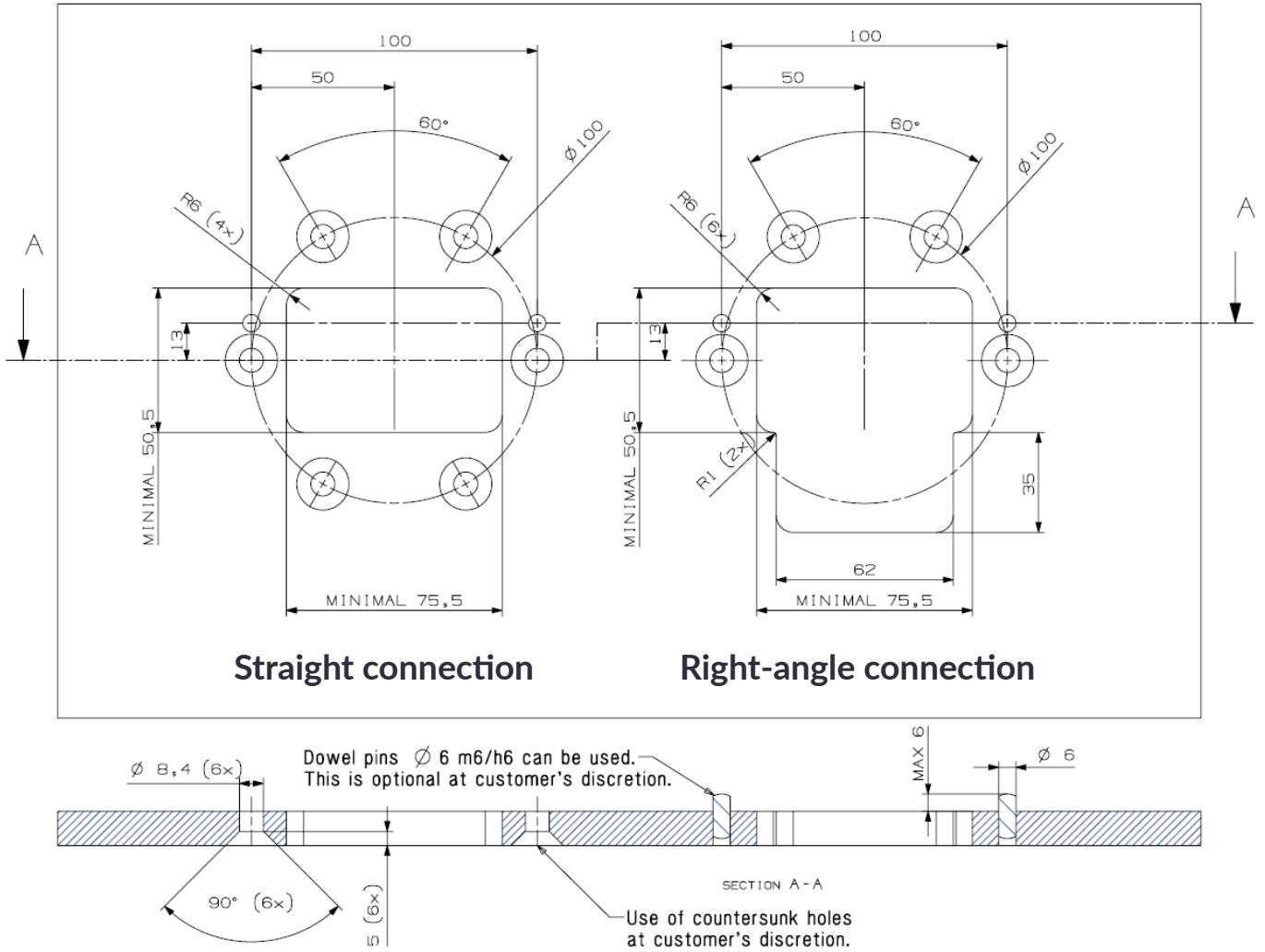


### DBM125 Straight connection



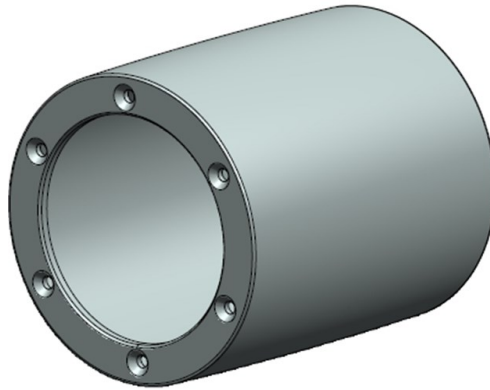
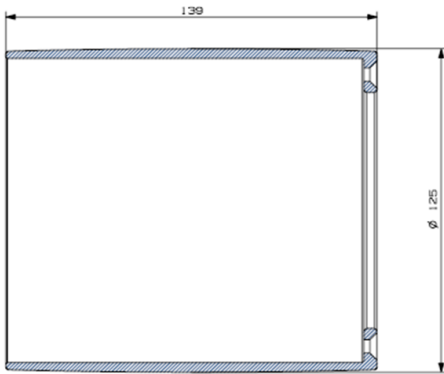
Model Number	"A" (mm)
DBM125-103	103.0 ±0.25
DBM125-140	140.0 ±0.25

## Mounting plate cutout



## Sleeve / Interface

All Alternative sleeve variations like Cogged, V-groove, surface lagging or any other surface configuration as well as extended length sleeves, can be made available.

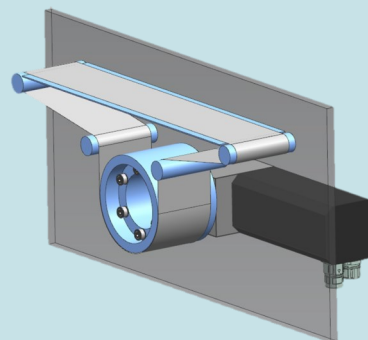


Model Number	"A" (mm)
SLV125-103-000	102.0 ±0.25
SLV125-140-000	139.0 ±0.25

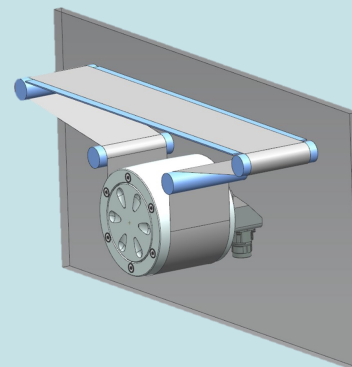
## Application Example

### Smart infeed belt conveyor

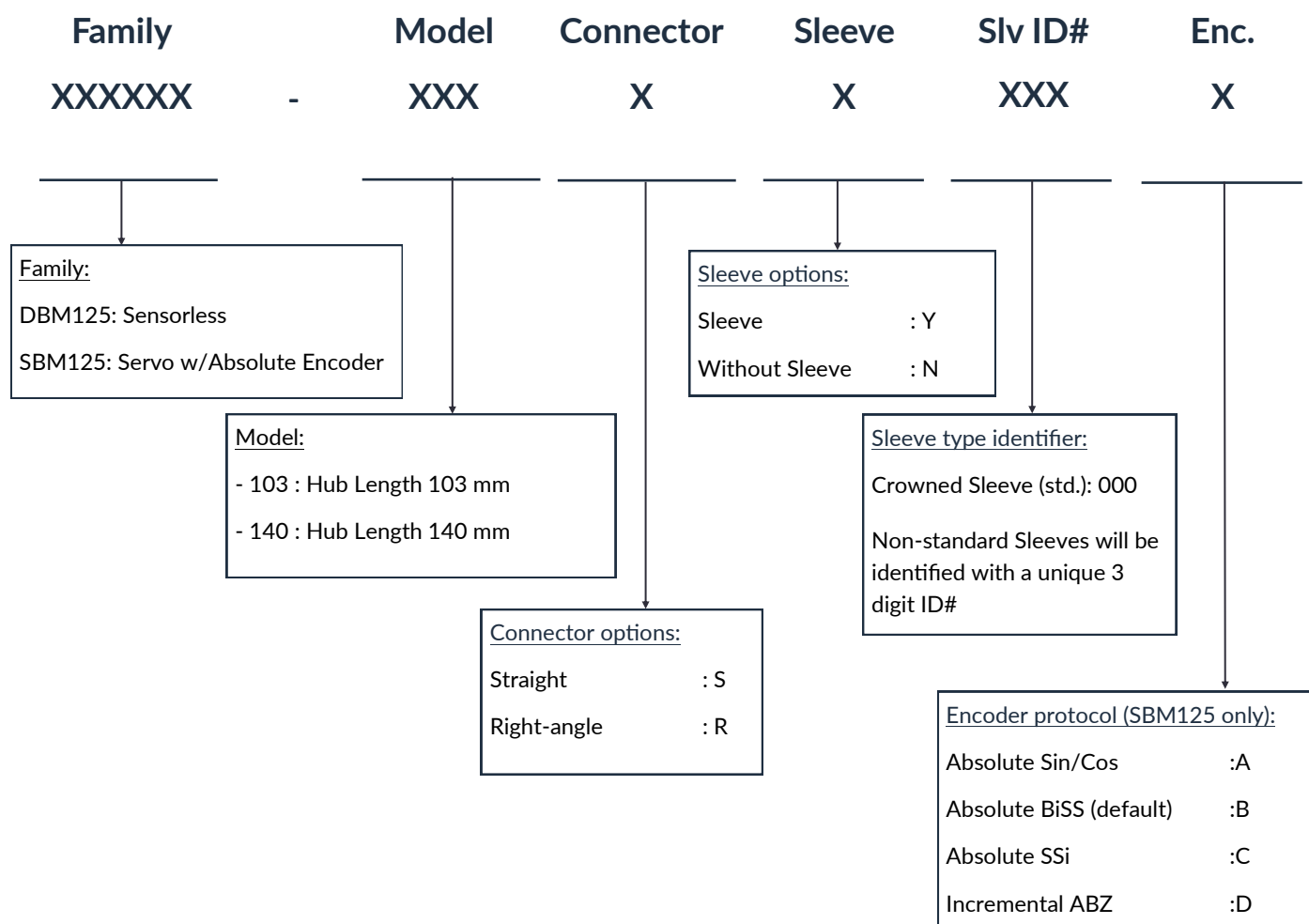
Balcony mounted Smart belt with traditional motor & gearbox hanging on the side of the construction.



Balcony mounted Smart belt with **SBM125 or DBM125 Direct Drive Belt Motor** integrated into the construction.



## Partnumbering index SBM125 and DBM125



### Partnumbering examples:

#### SBM125 - 103 R Y 000 C

SBM125-103 Servo motor w/ right-angle connection, standard crowned sleeve, Absolute SSi.

#### DBM125 - 140 S N

DBM125-140 sensorless motor w/ straight connection, no sleeve.

## Customized belt drive motors

If higher levels of customization are required, please contact **Magnetic Innovations** to share and let us understand your requirements. We are able to develop customized motors based on specific customer needs. Call or e-mail us for more information and see what we have to offer!

# GO DIRECT DRIVE!

Choose a maintenance free and energy efficient design.

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For more detailed information please contact us via  
[info@magneticinnovations.com](mailto:info@magneticinnovations.com)