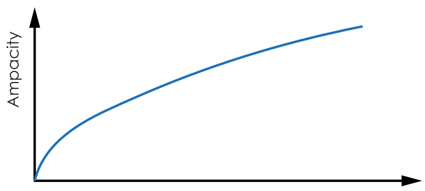
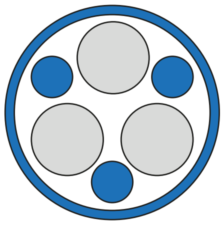
EMC Servo Ampacity Cable Glands Brass

Ampacity is defined as the maximum amount of electrical current a conductor or device can carry before sustaining immediate or progressive deterioration. The ampacity of a device depends on:

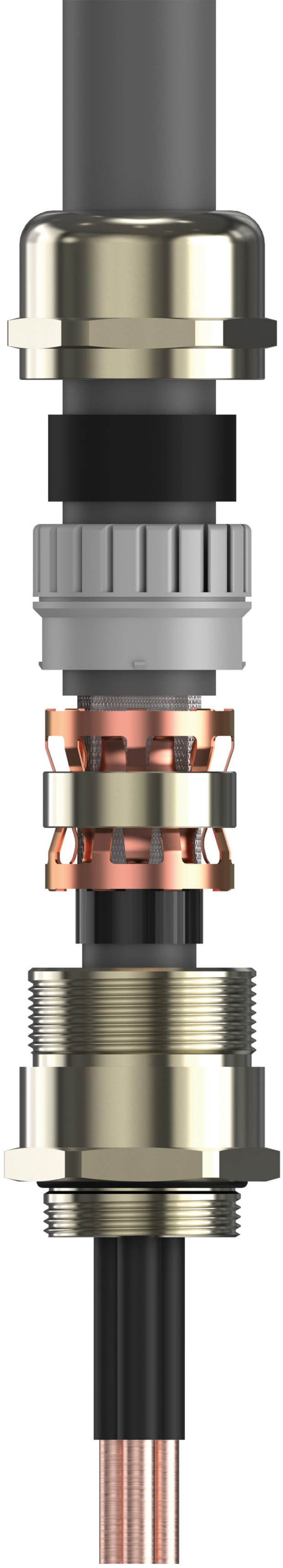
- its temperature rating
- its electrical resistance
- the frequency of the current
- its ability to dissipate heat
- the ambient temperature

Applications where above parameters are critical for the function of the equipment are railway systems and systems using VFD (Variable Frequency Drives) or PWM (Pulse Width Modulation) which use high frequency control signals. These control signals generate induced current in the cable shielding which must be grounded to avoid over heating which in the worst case will lead to malfunction of the system.





Sketch of servo cable cores (grey) and grounding cores and shield (blue)



EMC cable glands as they are known today are sufficient for grounding/earthing of small fault currents on the cable shielding. However, cable glands need a redesign to meet high amperage (up to hundreds Amps) requirements with maximum fault ampacity which exist in servo control cables.

Our newly designed Servo Ampacity Cable Glands have been designed to carry high fault currents without showing significant temperature increases in the cable glands themselves. An advanced contact system in the cable glands is capable of high conductivity, using a maximum cross section of contacts for contacting the shielding of a cable which makes the assembly a low impedance device, i.e. it avoids over heating as the power dissipation is approximately

$$P_w \approx I^2 * Z_D$$

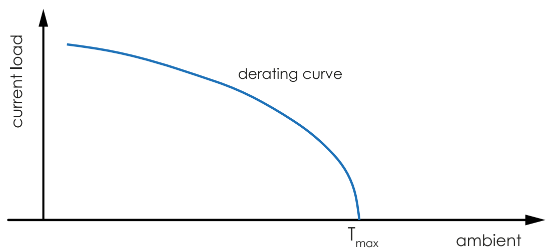
where

Pw = dissipated power
I = induced current
ZD = impedance of the device.

The maximum allowed temperature increase of the device is also depending on the ambient temperature as this temperature is added to the temperature increase:

$$T_{max} = T_{amb} + T_{increase}$$

It also means the current load of a device also depends on the ambient temperature. If the ambient temperature equals the maximum allowed maximum temperature Tmax = Tamb, the current load would be zero:



Tests according to IEC 60512-5-2 (temperature derating) and IEC 60512-5-1 (temperature rise) by an independent laboratory show no significant temperature increase on our Servo Ampacity Cable Glands.

Shielding capabilities for EMI of these cable glands are equally impressive up to GHz range. They are shock and vibration approved according to international automotive standards. Installation of the Servo Ampacity Cable Glands is easy and reliable.

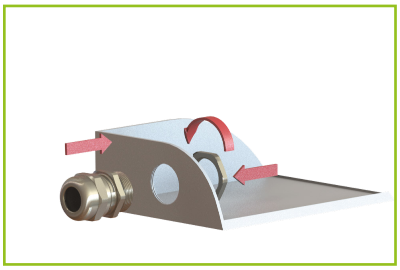
EMC Servo Ampacity Cable Glands Brass

Installation instructions for EMC-FA cable glands

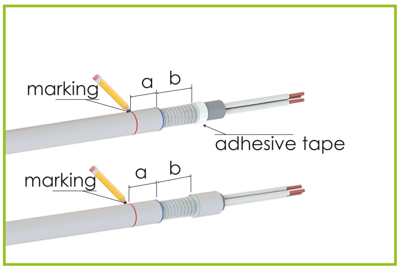
In order to avoid electromagnetic interference EMC cable glands include a special EMC component that enlarges the contact with the cable shield . Assembly must be done by trained people only.

Under clamping pressure the outer sheath of a cable can shrink. We recommend to choose cable glands whose lower clamplng range Is sufficiently smaller than the cable's outer dimension.

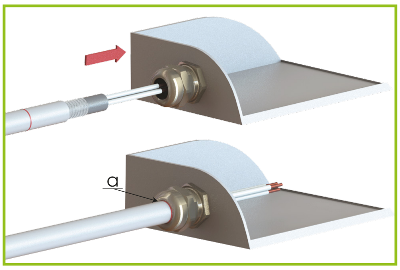
The shield diameter must fit.



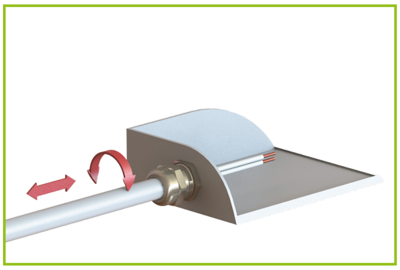
1. Install cable gland to the enclosure with the indicated "torque body". In order to increase contact quality EMC locknut utilization is recommended.



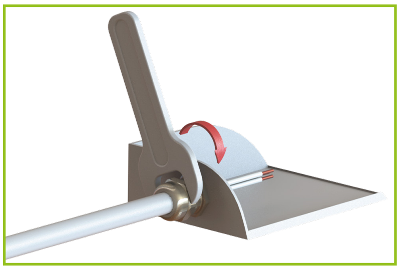
2. ***a.***Remove the outer sheath of the coble carefully and don't cut into the shielding (braiding).
b.Use adhesive tape (preferred: adhesive copper band with conductive adhesive) or part of the outer sheath to protect the end part of the wires. See diagram above.
c.For required exposed length of shielding "b" please see diagram and table in products manual.
d.Mark dimension "a" on outer sheath accordingly. (See table.)



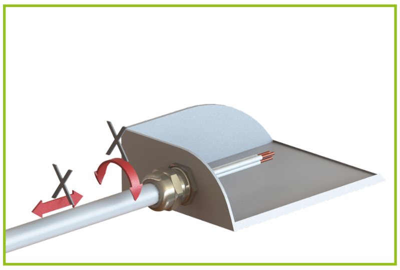
3. Insert cable Into cable gland until marking "a" aligns with cap.



4. As long as the cap is not tightened, you can easily pull push or rotate the cable.



5. Tighten cap and apply indicated "torque cap". EMC component will contact shielding.



6. Do not pull or rotate cable after cap has been tightened. It will damage cable gland and shielding.

EMC Servo Ampacity Cable Glands Brass

EMC cable glands with high current proof, open moving spring contact

- For metal machines and housings.
- Vibration proof EMC performance.
- For high current proof applications.
- Specially designed EMC protective cable glands.
- Long-lasting contact by high definition contact spring.
- Moving spring contact offers reduced risk of sheath damage.
- Easy movement of cable as long as not fastened.
- Easy assembly: install cable gland - prepare cable sheath - insert cable - tighten cap.
- Easy assembly and disassembly of cable. Spring closes and opens according to fastening of the cap.
- High quality strain relief and sealing, reliable performance for EMC applications.
- Up-to-date international approvals.

Technical Details			
Material	**Body, Cap**	Nickel plated Brass, Stainless Steel	
	Seal	CR (Chloroprene)	
	Clamping Insert	PA 6 (Polyamide 6)	
	Contact Springs	Special Copper Alloy	
	O-Ring	NBR	
Ingress Protection Rating		IP 68 - 5 Bar, 30 min	
Flammability		V2 according to UL94	
Operating Temperature		**Permanent**	**Intermittent**
		-20 °C to +100 °C	-40 °C to +150 °C
Thread Type		• Metric EN 60423 • NPT ANSI B1.20.1	
Cable Type		Shielded	
Accessories		• EMC Locknuts • Dome plugs • Gaskets (Washers)	
Remarks		• In compliance with DIN EN 62444. • We recommend the use of lock nuts and gaskets to ensure IP rating for rough surfaces or through holes. • Some approvals do not cover all sizes. • O-ring is available in Metric thread as a standard. For NPT threads o-ring available upon request. • Accessories must be ordered separately. • Other lock nut types also available upon request.	

Approvals	Certificate Number	Standards
	40039349	In progress
	E-199260	In progress

For details of approvals see our webpage.

EMC Servo Ampacity Cable Glands Brass

Thread Type **METRIC** acc. to EN 60423

Outer Thread Size (Male)	Clamping Range	Shield Diameter	Outer Thread Length	Spanner Width Cap	Body	Outer Ø	max. Height	Part Number
	Ø min-max mm	Ø min-max mm	TL mm	SW Cap mm	SW Body mm	D mm	H mm	
M16x1,5	5,0 – 10,0	3,5 – 8,0	6,0	20	20	22,0	41,0	**BMEM-51**
M20x1,5	6,0 – 12,0	4,5 – 10,0	8,0	22	22	24,5	42,5	**BMEM-52S**
	7,5 – 14,0	5,5 – 11,0	8,0	24	24	27,0	47,0	**BMEM-52**
M25x1,5	10,0 – 18,0	7,0 – 14,0	8,0	30	30	33,0	52,0	**BMEM-53**
M32x1,5	16,0 – 25,0	12,0 – 20,0	9,0	40	40	44,5	60,0	**BMEM-54**
M40x1,5	22,0 – 32,0	18,0 – 27,0	9,0	50	50	64,0	66,5	**BMEM-55**
M50x1,5	30,0 – 38,0	26,0 – 34,0	9,0	58	58	64,0	64,0	**BMEM-56**
M63x1,5	34,0 – 44,0	30,0 – 40,0	14,0	64	68	75,0	65,0	**BMEM-57**
	37,0 – 53,0	33,0 – 49,0	14,0	75	75	83,0	76,5	**BMEM-57L**

Thread Type **NPT** acc. to ANSI B1.20.1

Outer Thread Size (Male)	Clamping Range	Shield Diameter	Outer Thread Length	Spanner Width Cap	Body	Outer Ø	max. Height	Part Number
	Ø min-max mm	Ø min-max mm	TL mm	SW Cap mm	SW Body mm	D mm	H mm	
NPT 3/8"	5,0 – 10,0	3,5 – 8,0	11,5	20	20	22,0	40,5	**BNEM-51**
NPT 1/2"	6,0 – 12,0	4,5 –10,0	15,0	22	24	27,0	46,5	**BNEM-5S2**
	7,5 – 14,0	5,5 – 11,0	15,0	24	24	27,0	43,0	**BNEM-52**
NPT 3/4"	10,0 – 18,0	7,0 – 14,0	15,0	30	30	33,0	51,5	**BNEM-53**
NPT 1"	16,0 – 25,0	12,0 – 20,0	20,0	40	40	44,5	60,0	**BNEM-54**
NPT 1 1/4"	22,0 – 32,0	18,0 – 27,0	20,0	50	50	64,0	66,5	**BNEM-55**
NPT 1 1/2"	30,0 – 38,0	26,0 – 34,0	20,0	58	58	64,0	63,5	**BNEM-56**
NPT 2"	34,0 – 44,0	30,0 – 40,0	22,0	64	64	75,0	72,0	**BNEM-57**
	37,0 – 53,0	33,0 – 49,0	22,0	75	75	83,0	74,0	**BNEM-57L**