CCG CABLE TERMINATIONS

VORTEX INSPECTABLE INJECTION RESIN SWIVEL ADAPTOR

SWIVEL BARRIER ADAPTOR

Ex db, Ex eb, Ex ta, IP65/66

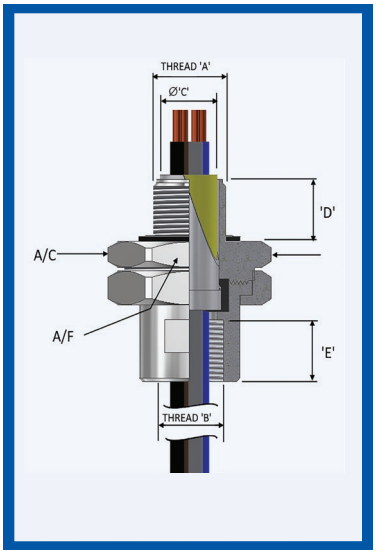
For General Industrial and Hazardous Area Installations

Features and Benefits

- Precision machined from high quality Brass (Marine Grade Electroless Nickel Plated™). Available in Aluminium or Stainless Steel 316/316L on request. (Note: Aluminium not suitable for Group I use.)
- A resin barrier and the serrated flamepath joint between the male and female threads provides Ex d protection from both sides of the swivel barrier adaptor.
- The liquid resin seals around the conductors, providing an Ex d barrier.
- Provides the dual function of a conduit connector and a sealing fitting for Ex d conduit installations.
- Allows independent tightening of male and female threads. Male parallel threads are supplied with a sealing gasket as standard.
- Can be used to convert thread types and / or to connect conduit to equipment.

Technical Data

Type:	Swivel Barrier Adaptor
Material:	Brass (Marine Grade Electroless Nickel Plated™), Aluminium or Stainless Steel 316/316L
Gasket material:	HDPE, Nylon 6 or PTFE (for extreme temperatures)
Barrier seal material:	Quick Setting Injection Resin
Note:	The installer should check that the materials are suitable for the installation environment.



Standards and Certifications

Equipment protection Levels:	IECEx: Ex db I Mb / Ex eb I Mb / Ex db IIC Gb / Ex eb IIC Gb / Ex ta IIIC Da ATEX / UKEX: Ⓔx I M2 Ex db I Mb / Ex eb I Mb, Ⓔx II 2G 1D Ex db IIC Gb / Ex eb IIC Gb/ Ex ta IIIC Da	
Conformance:	Standard:	Certificate:
IECEx	IEC 60079 Part 0, 1, 7, 31	IECEx TSA 23.0024X
ATEX	EN 60079 Part 0, 1, 7, 31	CML 15ATEX1040X
UKEX	BS EN 60079 Part 0, 1, 7, 31	CML 21UKEX1014X
SANS	SANS/IEC 60079 Part 0, 1, 7, 15, 31	MASC MS/23-9594X
IP65/66	IEC60529	IECEx TSA 23.0024X
Corrosion Protection	ASTM B117-11, BS EN ISO 3231	EXOVA N968667

Conditions for Safe Use

- The IP rating is IP66 when sealing gaskets are used on both threads, otherwise IP65.
- The surface being sealed against must be in good condition.
- Operating temperature range -60°C to +100°C.

METRIC TO METRIC

Product Code	Adaptor Size	Male Thread 'A'	Male Thread Length 'D'	Female Thread 'B'	Female Thread Length 'E'	Max. Dia. over cores 'C'	Max. No. of cores	Hex. Detail Max 'Flats'	Hex. Detail Max 'Crns'	Install. Torque Value Nm
SBA1M020M020E	1	M20x1.5	15.0	M20x1.5	17.0	14.0	13	38.0	42.8	21.0
SBA1M025M020E	1	M25x1.5	15.0	M20x1.5	17.0	14.0	13	38.0	42.8	21.0
SBA2M025M025E	2	M25x1.5	15.0	M25x1.5	17.0	19.0	20	50.0	56.3	30.0
SBA2M032M025E	2	M32x1.5	15.0	M25x1.5	17.0	19.0	20	50.0	56.3	30.0
SBA3M032M032E	3	M32x1.5	15.0	M32x1.5	17.0	25.0	40	55.0	61.9	42.0
SBA3M040M032E	3	M40x1.5	15.0	M32x1.5	17.0	25.0	40	55.0	61.9	42.0
SBA4M040M040E	4	M40x1.5	15.0	M40x1.5	17.0	33.0	60	60.0	67.5	52.0
SBA4M050M040E	4	M50x1.5	15.0	M40x1.5	17.0	33.0	60	60.0	67.5	52.0
SBA5M050M050E	5	M50x1.5	15.0	M50x1.5	17.0	38.0	80	65.0	73.1	57.0
SBA5M063M050E	5	M63x1.5	15.0	M50x1.5	17.0	38.0	80	65.0	73.1	57.0
SBA6M063M063E	6	M63x1.5	15.0	M63x1.5	17.0	48.0	100	80.0	90.0	66.0
SBA6M075M063E	6	M75x1.5	15.0	M63x1.5	17.0	48.0	100	80.0	90.0	66.0
SBA7M075M075E	7	M75x1.5	15.0	M75x1.5	17.0	60.0	120	96.0	102.0	72.0
SBA7M080M075E	7	M80x2.0	15.0	M75x1.5	17.0	60.0	120	96.0	102.0	72.0
SBA8M080M080E	8	M80x2.0	20.0	M80x2.0	22.0	71.0	140	111.0	124.9	80.0
SBA8M090M080E	8	M90x2.0	20.0	M80x2.0	22.0	71.0	140	111.0	124.9	80.0
SBA9M090M090E	9	M90x2.0	20.0	M90x2.0	22.0	79.0	160	125.0	140.6	89.0
SBA9M100M090E	9	M100x2.0	20.0	M90x2.0	22.0	79.0	160	125.0	140.6	89.0
SBA10M100M100E	10	M100x2.0	20.0	M100x2.0	22.0	88.0	180	135.0	151.9	98.0

METRIC TO NPT

Product Code	Adaptor Size	Male Thread 'A'	Male Thread Length 'D'	Female Thread 'B'	Female Thread Length 'E'	Max. Dia. over cores 'C'	Max. No. of cores	Hex. Detail Max 'Flats'	Hex. Detail Max 'Crns'	Install. Torque Value Nm
SBA1M020N012E	1	M20x1.5	15.0	½ NPT	17.0	14.0	13	38.0	42.8	21.0
SBA1M025N012E	1	M25x1.5	15.0	½ NPT	17.0	14.0	13	38.0	42.8	21.0
SBA2M025N034E	2	M25x1.5	15.0	¾ NPT	17.0	19.0	20	50.0	56.3	30.0
SBA2M032N034E	2	M32x1.5	15.0	¾ NPT	17.0	19.0	20	50.0	56.3	30.0
SBA3M032N001E	3	M32x1.5	15.0	1 NPT	20.5	25.0	40	55.0	61.9	42.0
SBA3M040N001E	3	M40x1.5	15.0	1 NPT	20.5	25.0	40	55.0	61.9	42.0
SBA4M040N114E	4	M40x1.5	15.0	1¼ NPT	21.0	33.0	60	60.0	67.5	52.0
SBA4M050N114E	4	M50x1.5	15.0	1¼ NPT	21.0	33.0	60	60.0	67.5	52.0
SBA5M050N112E	5	M50x1.5	15.0	1½ NPT	21.5	38.0	80	65.0	73.1	57.0
SBA5M063N112E	5	M63x1.5	15.0	1½ NPT	21.5	38.0	80	65.0	73.1	57.0
SBA6M063N002E	6	M63x1.5	15.0	2 NPT	22.5	48.0	100	80.0	90.0	66.0
SBA6M075N002E	6	M75x1.5	15.0	2 NPT	22.5	48.0	100	80.0	90.0	66.0
SBA7M075N212E	7	M75x1.5	15.0	2½ NPT	32.0	60.0	120	96.0	102.0	72.0
SBA7M080N212E	7	M80x2.0	15.0	2½ NPT	32.0	60.0	120	96.0	102.0	72.0
SBA8M080N003E	8	M80x2.0	20.0	3 NPT	33.5	71.0	140	111.0	124.9	80.0
SBA8M090N003E	8	M90x2.0	20.0	3 NPT	33.5	71.0	140	111.0	124.9	80.0
SBA9M090N312E	9	M90x2.0	20.0	3½ NPT	35.0	79.0	160	125.0	140.6	89.0
SBA9M100N312E	9	M100x2.0	20.0	3½ NPT	35.0	79.0	160	125.0	140.6	89.0
SBA10M100N004E	10	M100x2.0	20.0	4 NPT	36.0	88.0	180	135.0	151.9	98.0

NPT TO METRIC

Product Code	Adaptor Size	Male Thread 'A'	Male Thread Length 'D'	Female Thread 'B'	Female Thread Length 'E'	Max. Dia. over cores 'C'	Max. No. of cores	Hex. Detail Max 'Flats'	Hex. Detail Max 'Crns'	Install. Torque Value Nm
SBA1N012M020E	1	½ NPT	22.0	M20x1.5	17.0	14.0	13	38.0	42.8	*
SBA1N034M020E	1	¾ NPT	22.5	M20x1.5	17.0	14.0	13	38.0	42.8	*
SBA2N034M025E	2	¾ NPT	22.5	M25x1.5	17.0	19.0	20	50.0	56.3	*
SBA2N001M025E	2	1 NPT	27.0	M25x1.5	17.0	19.0	20	50.0	56.3	*
SBA3N001M032E	3	1 NPT	27.0	M32x1.5	17.0	25.0	40	55.0	61.9	*
SBA3N114M032E	3	1¼ NPT	28.0	M32x1.5	17.0	25.0	40	55.0	61.9	*
SBA4N114M040E	4	1¼ NPT	28.0	M40x1.5	17.0	33.0	60	60.0	67.5	*
SBA4N112M040E	4	1½ NPT	28.0	M40x1.5	17.0	33.0	60	60.0	67.5	*
SBA5N112M050E	5	1½ NPT	28.0	M50x1.5	17.0	38.0	80	65.0	73.1	*
SBA5N002M050E	5	2 NPT	29.0	M50x1.5	17.0	38.0	80	65.0	73.1	*
SBA6N002M063E	6	2 NPT	29.0	M63x1.5	17.0	48.0	100	80.0	90.0	*
SBA6N212M063E	6	2½ NPT	42.0	M63x1.5	17.0	48.0	100	80.0	90.0	*
SBA7N212M075E	7	2½ NPT	42.0	M75x1.5	17.0	60.0	120	96.0	102.0	*
SBA7N003M075E	7	3 NPT	44.0	M75x1.5	17.0	60.0	120	96.0	102.0	*
SBA8N003M080E	8	3 NPT	44.0	M80x2.0	22.0	71.0	140	111.0	124.9	*
SBA8N312M080E	8	3½ NPT	45.0	M80x2.0	22.0	71.0	140	111.0	124.9	*
SBA9N312M090E	9	3½ NPT	45.0	M90x2.0	22.0	79.0	160	125.0	140.6	*
SBA10N004M100E	10	4 NPT	46.0	M100x2.0	22.0	88.0	180	135.0	151.9	*

NPT TO NPT

Product Code	Adaptor Size	Male Thread 'A'	Male Thread Length 'D'	Female Thread 'B'	Female Thread Length 'E'	Max. Dia. over cores 'C'	Max. No. of cores	Hex. Detail Max 'Flats'	Hex. Detail Max 'Crns'	Install. Torque Value Nm
SBA1N012N012E	1	½ NPT	22.0	½ NPT	17.0	14.0	13	38.0	42.8	*
SBA1N034N012E	1	¾ NPT	22.5	½ NPT	17.0	14.0	13	38.0	42.8	*
SBA2N034N034E	2	¾ NPT	22.5	¾ NPT	17.0	19.0	20	50.0	56.3	*
SBA2N001N034E	2	1 NPT	27.0	¾ NPT	17.0	19.0	20	50.0	56.3	*
SBA3N001N001E	3	1 NPT	27.0	1 NPT	20.5	25.0	40	55.0	61.9	*
SBA3N114N001E	3	1¼ NPT	28.0	1 NPT	20.5	25.0	40	55.0	61.9	*
SBA4N114N114E	4	1¼ NPT	28.0	1¼ NPT	21.0	33.0	60	60.0	67.5	*
SBA4N112N114E	4	1½ NPT	28.0	1¼ NPT	21.0	33.0	60	60.0	67.5	*
SBA5N112N112E	5	1½ NPT	28.0	1½ NPT	21.5	38.0	80	65.0	73.1	*
SBA5N002N112E	5	2 NPT	29.0	1½ NPT	21.5	38.0	80	65.0	73.1	*
SBA6N002N002E	6	2 NPT	29.0	2 NPT	22.5	48.0	100	80.0	90.0	*
SBA6N212N002E	6	2½ NPT	42.0	2 NPT	22.5	48.0	100	80.0	90.0	*
SBA7N212N212E	7	2½ NPT	42.0	2½ NPT	32.0	60.0	120	96.0	102.0	*
SBA7N003N212E	7	3 NPT	44.0	2½ NPT	32.0	60.0	120	96.0	102.0	*
SBA8N003N003E	8	3 NPT	44.0	3 NPT	33.5	71.0	140	111.0	124.9	*
SBA8N312N003E	8	3½ NPT	45.0	3 NPT	33.5	71.0	140	111.0	124.9	*
SBA9N312N312E	9	3½ NPT	45.0	3½ NPT	35.0	79.0	160	125.0	140.6	*
SBA10N004N004E	10	4 NPT	46.0	4 NPT	36.0	88.0	180	135.0	151.9	*

All dimensions except NPT are in mm. * NPT threads should be tightened 'wrench tight'

Swivel Barrier Adaptor

ENCLOSURES AND EQUIPMENT TO WHICH SWIVEL ADAPTORS ARE FITTED:-

- Must be made from materials which are compatible with the swivel barrier adaptor materials.
- Have a sealing area around the cable entry point with a surface roughness < Ra 6.3µm.
- Have entries that are perpendicular to the enclosure face in the area where the swivel barrier adaptor will seal to within 2.5°.
- Are sealed using the supplied sealing gasket (parallel threads) or by fully tightening into a threaded entry (tapered threads).

MUST HAVE THREADED ENTRIES

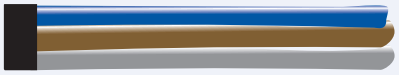
- The same thread size as the swivel barrier adaptor.
- With a thread tolerance of metric class '6H' or equivalent.
- Where the thread length meets the certification minimum requirements (Ex d) or 3mm for all other applications.

OR CLEARANCE HOLES (Not Ex d)

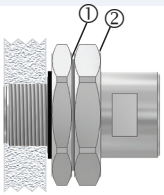
- Where the hole size is the thread nominal size with a tolerance of +0.1 to + 0.7mm
- Through material that is at least 1mm thick.

Installation should only be carried out by competent persons using the correct tools. In the illustration below it is assumed that the conductors are housed in a conduit which will be attached to the swivel barrier adaptor.

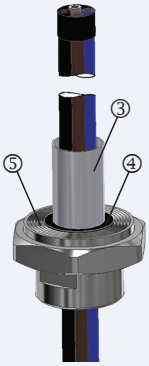
1. Feed cables / conductors through the conduit. Wipe the conductors with a clean cloth where they will pass through the swivel barrier adaptor and wrap a thin strip of insulation tape around their ends. (This is to help ease the conductors through the resin seal ④ later.)



2. Screw the entry item ① into the equipment. Tighten to the torque specified in the tables above.



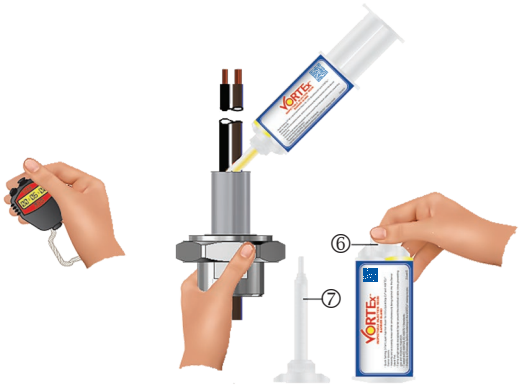
3. Unscrew the coupling nut ②, withdraw the female thread assembly ⑤, including the resin pot, and hold vertically. Feed the conductors carefully through the resin seal to their required position and hold in place. Note that it might be advantageous to wrap a narrow strip of tape around the conductors at the point where they pass through the resin seal ④ to assist the action of the seal.



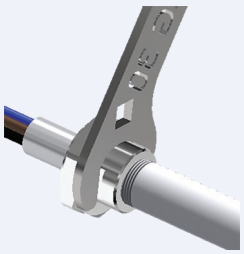
4. Remove the tape from the ends of the conductors and separate them. Remove the cap ⑥ from the resin applicator and attach the mixing nozzle ⑦ (use the extension nozzle for small multicore cables). Whilst holding the barrier pot sub assembly ⑤ vertical, inject the resin into the resin pot ③. Ensure that the resin fills the resin pot ③ to the top and wipe away any excess resin.

   Wait for the resin to set from a liquid to a gel. This should take:
   - 15 minutes at 10°C
   - 7 minutes at 20°C
   - 6 minutes at 30°C
   - 5 minutes at 40°C

   For installations in less than 5°C ambient, warm the resin tube in warm water at ~50°C. If there is still resin left in the tube, discard the mixing nozzle ⑦ and replace the cap ⑥ for use with the next gland.



5. Screw the female assembly ⑤ onto the conduit and fully tighten using a spanner on the flats. (The conduit may need to be held with pipe grips during this operation.) Tighten with a spanner applied to the flats on the female part ③.



6. Re-fit the female assembly ⑤ to the entry item ① and make sure that the serrated flamepath halves engage each other. Connect the two parts with the coupling nut ② and fully tighten to complete the assembly.