
HAWKE
Transit System

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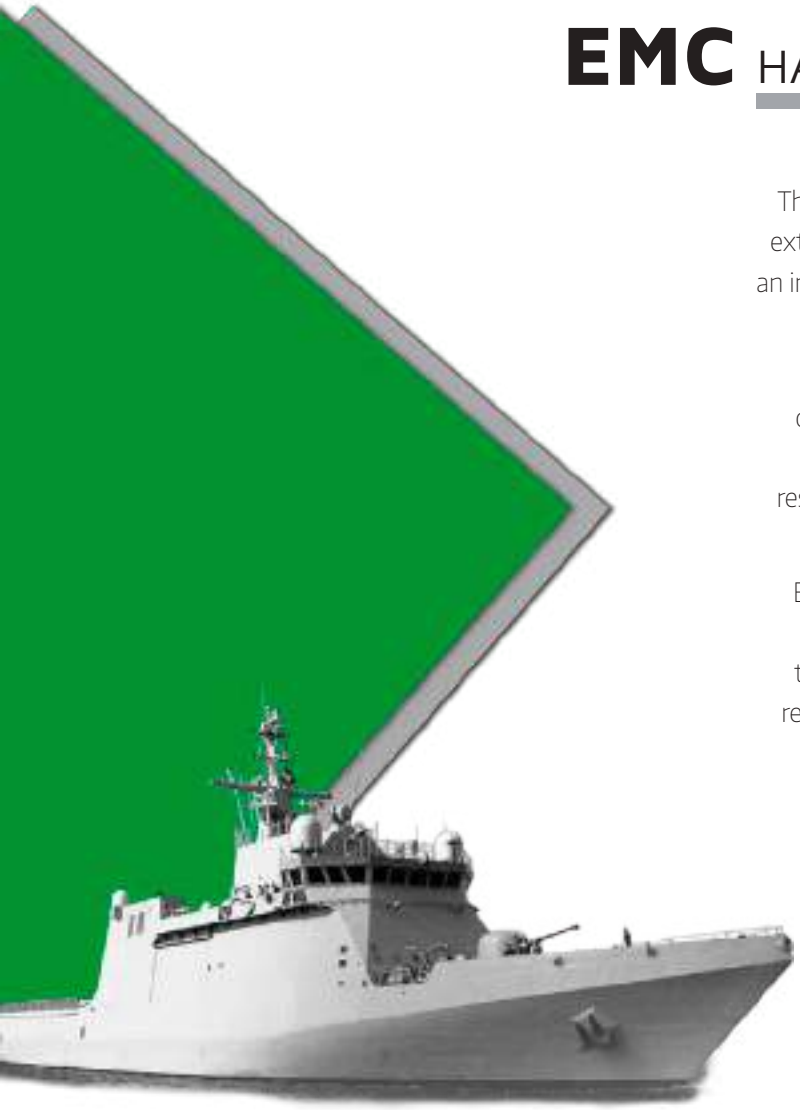
EMC
TRANSIT SYSTEMS



EMC HAWKE TRANSIT SYSTEMS

The need to protect sensitive electronic equipment against extraneous electromagnetic and radio frequency radiation is an increasing and critical factor in the design of equipment and installations.

A major concern is to ensure the integrity of operation of the equipment such as computers, signal control and communication systems by effective sealing and low resistance earth continuity bonding at cable and pipe entry points of a low "noise" environment.

Electromagnetic compatibility (EMC) is the term used to express the ability of electronic equipment or systems to operate satisfactorily in a given environment without responding to electrical noise or emitting unwanted noise.

EMC is achieved by reducing the Electromagnetic interference (EMI) to a level which in most applications will not disrupt the proper operation of the electronic devices.

The Hawke EMC Cable Transit System. Hawke's system has been further developed from the highly successful Civil and Marine Transits which are equally suitable for cables or pipes.

CHARACTERISTICS

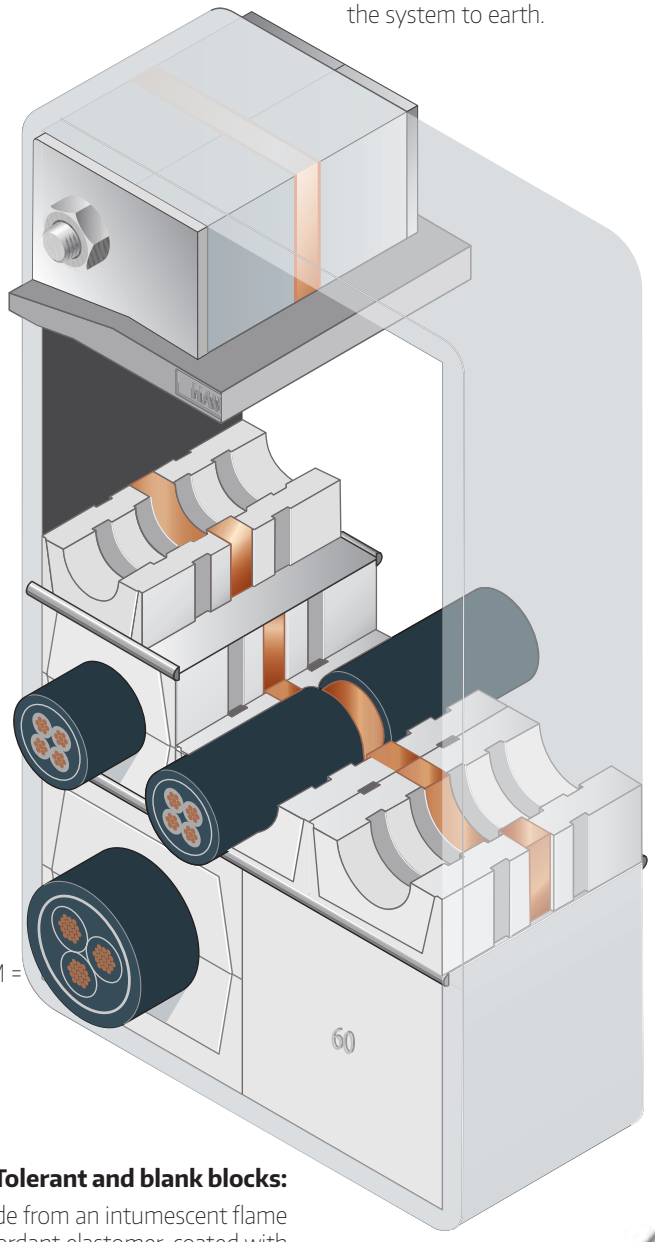
- As well as acting as a certified fire, water and gas barrier, the Hawke EMC Multi Cable Transit System (EMC MCT) provide protection against electromagnetic pulses, electronic sabotage, noise, etc.
- Essential to ensure the integrity of electronic devices, computers and military communication systems.
- Just like HF blocks, EMC HF tolerant blocks have a cable sealing range of 3mm to 100mm without the need of any on-site modifications. EMC blocks are coated with a highly conductive silver-loaded paint to capture any airborne electrical noise.
- Copper tape provides a high conductive path from cable screen to frame, and stainless steel frames allow conductivity from blocks to earth.

Frame:

Hawke frame is attached to the structure and forms the surround of the penetration, allowing the system to compress and content the pressure. To guarantee correct EMC sealing, stainless steel is recommended by HTS to ensure good conductivity and a good connection of all the system to earth.

Compression system:

Needed to apply pressure to the system and complete the seal once the rest of the services have been installed. The 3 part endpacker transmits an evenly distributed pressure onto the compression plate, and ensures an effective seal around the cables. The conductive coat and the copper tape guarantee that the EMC requirements are maintained.



Adhesive copper strip:

Provided to build up the insert blocks and the stripped cable. All the cables require the removal of the outer sheath to achieve contact between the cable screen and the blocks. The copper EMI shielding tape with conductive adhesive is wrapper around the cable screen until the nominal outside diameter of the cable is achieved. This is important to ensure complete conductance of the electromagnetic pulses/fields in the inner walls of the steel frame against the earth.

Stayplates:

Installed to anchor insert and filler blocks into the frame and ease assembly, stainless steel stayplates also increase the conductance throughout the system to ensure effective shielding and EMI protection.

*Frame designation: M =

Tolerant and blank blocks:

Made from an intumescent flame retardant elastomer, coated with silver loaded conductive coat and wrapped with conductive copper tape, EMC HF blocks provide excellent shielding and EMC protection, along with the standard requirements of HF blocks against water, fire, etc.

Hawke tolerant blocks have a cable range of 3mm to 100mm without the need of any onsite modifications, reducing the time of installation up to several times compared with the competitors, and eliminating wastes.

EMC Frames

Hawke frames are attached to the structure and form the surround of the penetrations, allowing the systems to compress and content the pressure, and giving a conductive path from the cable screen and the surface of the blocks to the earth.

All standard HTS marine and civil frames are able to be used in EMC systems.

Stainless Steel is highly recommended for EMC applications.

- Ex available under request.

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TOLERANT BLOCKS

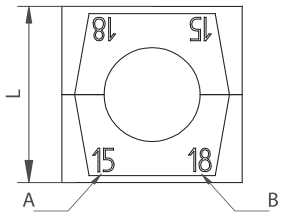
Hawke HF EMC tolerant blocks are designed to accommodate different cables passing through the frame.

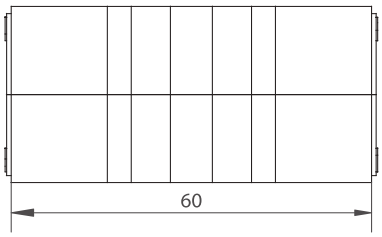
Its special design with five contact points allows the blocks to accommodate different diameters within the same block and accept variances in cable/pipe diameters.

Silver-loaded paint and copper strip wrapping ensures correct shielding.

CHARACTERISTICS

- Made of zero halogen, intumescent elastomeric polymer.
- No modification of the block needed during installation. Zero waste.
- Sealing grooves in the internal faces ensures correct contact all along your cable.
- Ex available under request.





		CABLE AND PIPE DIAMETER		
		LABEL A	LABEL B	
DESCRIPTION	L (mm)	MINIMUM (mm)	MAXIMUM (mm)	WEIGHT (kg)
HF153/E	15	3	5	0,02
HF155/E	15	5	7	0,02
HF157/E	15	7	9	0,01
HF203/E	20	3	6	0,03
HF206/E	20	6	9	0,03
HF209/E	20	9	12	0,03
HF2011/E	20	11	14	0,02
HF2013/E	20	13	16	0,02
HF3012/E	30	12	15	0,05
HF3015/E	30	15	18	0,06
HF3018/E	30	18	21	0,05
HF3021/E	30	21	24	0,04
HF4012/E	40	12	15	0,12
HF4015/E	40	15	18	0,12
HF4022/E	40	22	25	0,10
HF4025/E	40	25	28	0,09
HF4028/E	40	28	31	0,08

TOLERANT BLOCKS

		CABLE AND PIPE DIAMETER			
		LABEL A	LABEL B		
DESCRIPTION	L (mm)	MINIMUM (mm)	MAXIMUM (mm)	WEIGHT (kg)	COLOUR
HF4031	40	31	34	0,07	Orange
HF6031	60	31	34	0,22	Red
HF6034	60	34	37	0,21	White
HF6037	60	37	40	0,20	Blue
HF6040	60	40	43	0,19	Orange
HF6043	60	43	46	0,18	Purple
HF6046	60	46	49	0,16	Yellow
HF6049	60	49	52	0,14	Green
HF6052	60	52	54	0,11	Pink
HF9053	90	53	56	0,46	Red
HF9056	90	56	59	0,44	White
HF9059	90	59	62	0,42	Blue
HF9062	90	62	65	0,40	Orange
HF9065	90	65	68	0,39	Purple
HF9068	90	68	71	0,36	Yellow
HF12072	120	72	75	0,79	Red
HF12075	120	75	78	0,75	White
HF12078	120	78	81	0,71	Blue
HF12081	120	81	84	0,67	Orange
HF12084	120	84	87	0,64	Purple
HF12087	120	87	90	0,61	Yellow
HF12090	120	90	93	0,58	Green
HF12093	120	93	96	0,55	Pink
HF12096	120	96	100	0,52	Brown

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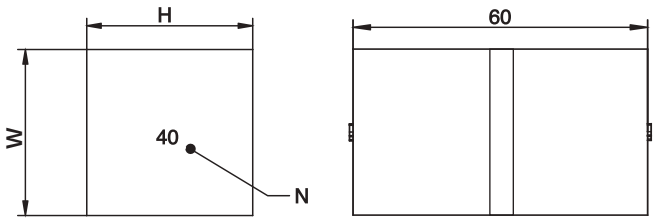
BLANK BLOCKS

Hawke HF EMC blank modules are designed to fill spaces within the frame which are not required for services, thus allowing spare capacity for future requirements. Silver-loaded paint and copper strip wrapping ensures correct shielding.

- Ex available under request.



Blank blocks

TYPE	H (mm)	W (mm)	LABEL (N)	WEIGHT (kg)
HF150/E	15	15	15	0,02
HF200/E	20	20	20	0,03
HF300/E	30	30	30	0,08
HF400/E	40	40	40	0,14
HF600/E	60	60	60	0,31
HF900/E	90	90	90	0,71
HF1200/E	120	120	120	1,24
HF90-30/E*	90	30	90-30	0,24

*HF90-30/E to be used along with a HF90 series tolerant block

Round corner blank blocks

TYPE	H (mm)	W (mm)	LABEL (N)	R (mm)	WEIGHT (kg)
HF200/E R20	20	20	20	20	0,03
HF300/E R20	30	30	30	20	0,07

Filler strips

TYPE	H (mm)	W (mm)	WEIGHT (kg)
HF50/E	5	120	0,03
HF100/E	10	120	0,11
HF100/E (12x10)*	10	120	0,11

* HF100/E precut into 12 pieces of 10x10mm blocks.

COMPRESSION SYSTEM

The Unique Hawke EMC Compression Systems are used in rectangular frames to compress and seal the installation of cables/pipes and HF EMC modules when electromagnetic compatibility is needed.

- **Endpacker:** The final element of the frame installation, this is inserted above the compression plate. The tightening of the bolts and the steel insert pins provides pressure to the system and ensures correct sealing.

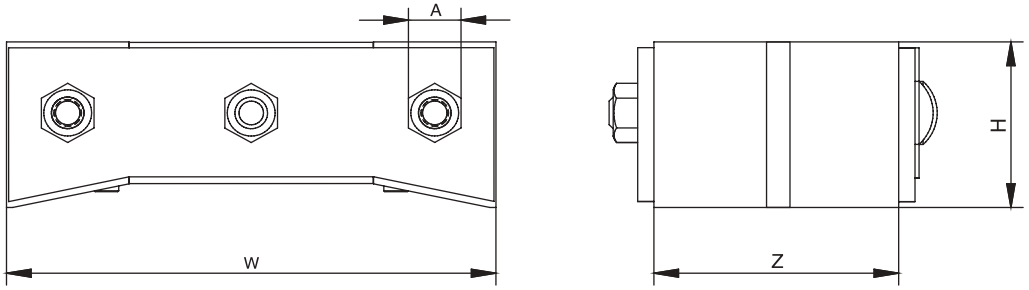
  Silver-loaded paint and copper strip wrapping ensures effective shielding.

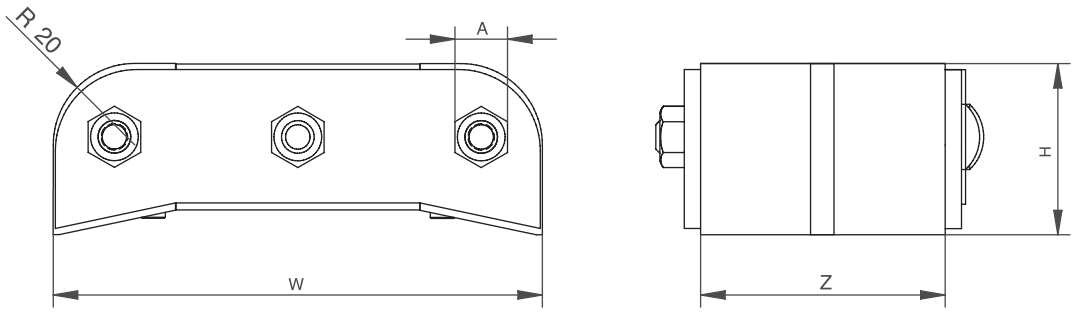
- **Compression plate:** Placed on the top of the last row of blocks, this plate distributes the pressure from the endpacker to the whole system.

CHARACTERISTICS

- Available in the different models: Standard, RR (Right round corner), LR (Left round corner) and DR (Double rounded), for the different kind of apertures in a frame.
- Designed to be installed in all rectangular apertures.
- Materials: Stainless Steel.
- Ex available under request.

Endpacker 1642B/ES





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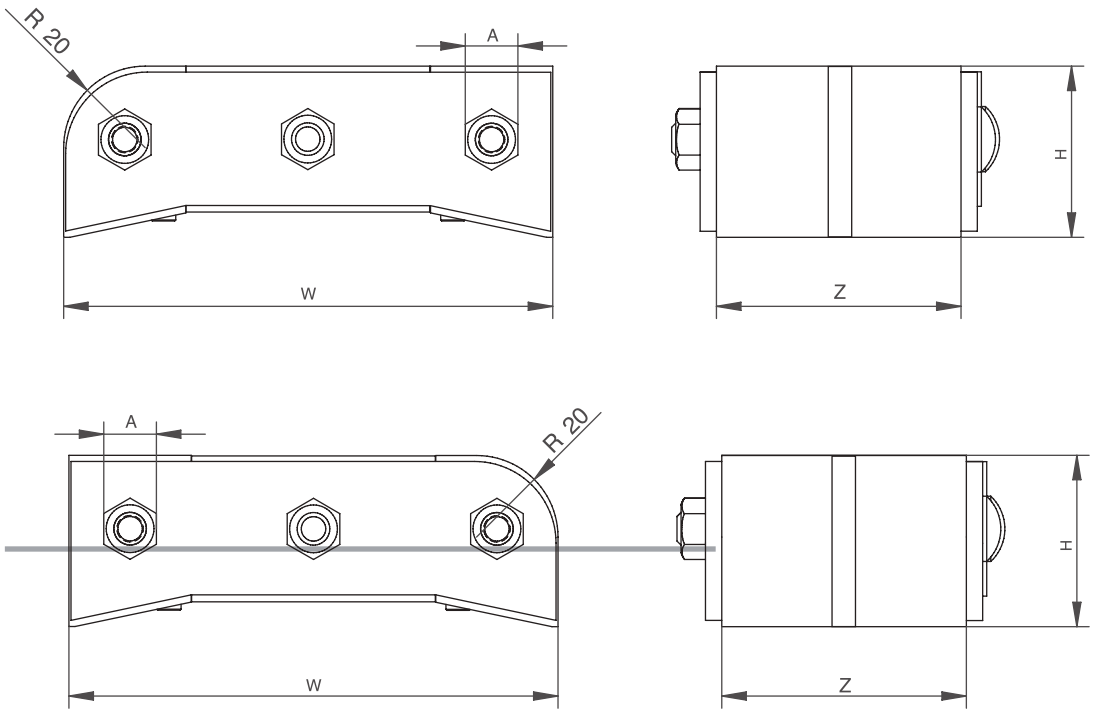
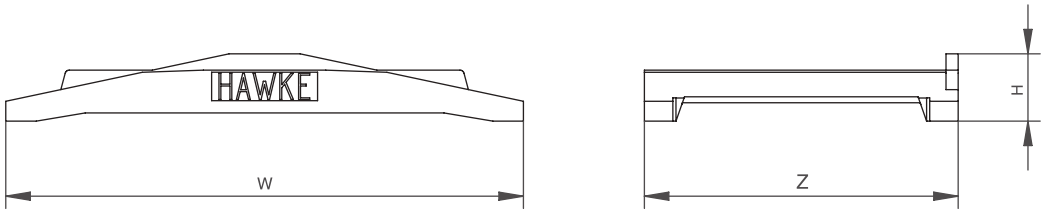
COMPRESSION SYSTEM



Compression plate 1642A/ES



DESCRIPTION		External dimensions				A	Weight (kg)	
		Qty	W [mm]	H [mm]	Z [mm]		Mild steel	Stainless steel
Compression System 1642/ES 120 mm	Endpacker/1642B/ES 120	1	120	42	60	13	0,8	0,8
	Compression Plate/1642A/ES 120	1	127	17	77	-	0,4	0,4
Compression System Double Round/1642/ES DR	Endpacker/1642B/ES DR	1	120	42		13	0,8	0,8
	Compression Plate/1642A/ES	1	127	17	77	-	0,4	0,4
Compression System Left Round/1642/ES LR	Endpacker/1642B/ES LR	1	120	42		13	0,8	0,8
	Compression Plate/1642A/ES	1	127	17	77	-	0,4	0,4
Compression System Right Round/1642/ES RR	Endpacker/1642B/ES RR	1	120	42		13	0,8	0,8
	Compression Plate/1642A/ES	1	127	17	77	-	0,4	0,4

* For separe parts adquisition, contact sales department

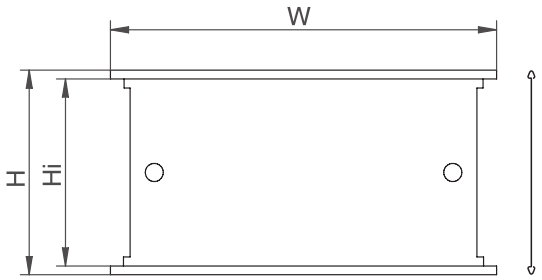
STAYPLATES

Stayplates ensure the blocks in a Hawke rectangular system (tolerant and blank ones) are fixed in position after compression.

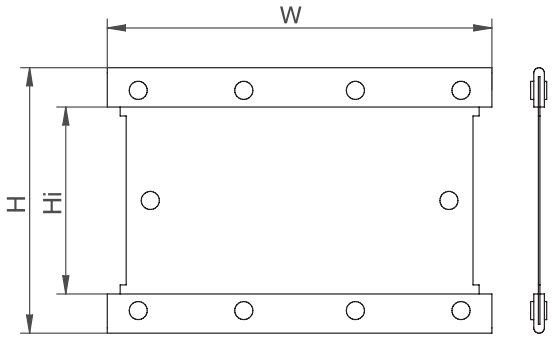
A stayplate should be placed above each complete row of insert/filler blocks. However, never on the last top row (underneath the compression plate) and never below the last bottom row of blocks.

- Available in AISI 304 stainless steel. AISI 316 and other materials under request.
- High pressure stayplates (Ref.931/P) are to be used in applications where the pressure requirement is greater than 3.5 bar.
- Ex available under request.

Hawke standard Stayplate



Hawke high pressure Stayplate



DESCRIPTION	W (mm)	H (mm)	Hi (mm)
Stayplate 931 60mm	68	68	62
Stayplate 931 120mm	128	68	62
High Pressure Stayplate 931/P 120mm	128	88	62

EMC MARKING TOOL

The EMC Marking tool (Ref. 970) is used to facilitate installation of cables within an EMC system.

This re-usable tool is designed to mark the area where cable sheath should be removed to wrap the copper tape, and to mark the cable in both ends of the frame to guarantee that blocks a cable copper tape are aligned.

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EMC CABLE SHEATH REMOVE TOOL

This re-usable tool is designed to remove the cable sheath with precision and without damaging the cable screen.

Description	Cable diameter	
	Minimum (mm)	Maximum (mm)
Cable sheat remove tool 972/A	4	22
Cable sheat remove tool 972/B	6	32
Cable sheat remove tool 972/C	10	64

EMC COPPER TAPE

Hawke Copper Tape (Ref. 950) is used in EMC systems to fill the gap between the cable screen and the EMC HF block after cable sheath has been removed.

It provides a high conductive path from cable screen to earth.

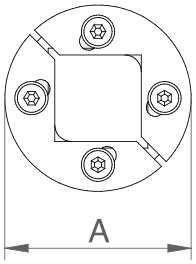
HRTO EMC

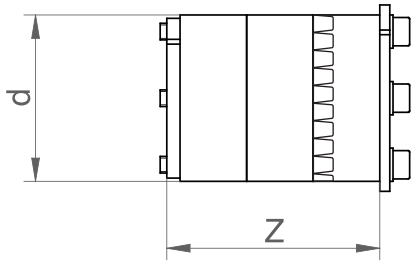
Hawke EMC HRTO is a round sealing solution for multiple cables/ pipes passing through a circular aperture in a wall or bulkhead/deck, to be used when electromagnetic compatibility (EMC) is needed.

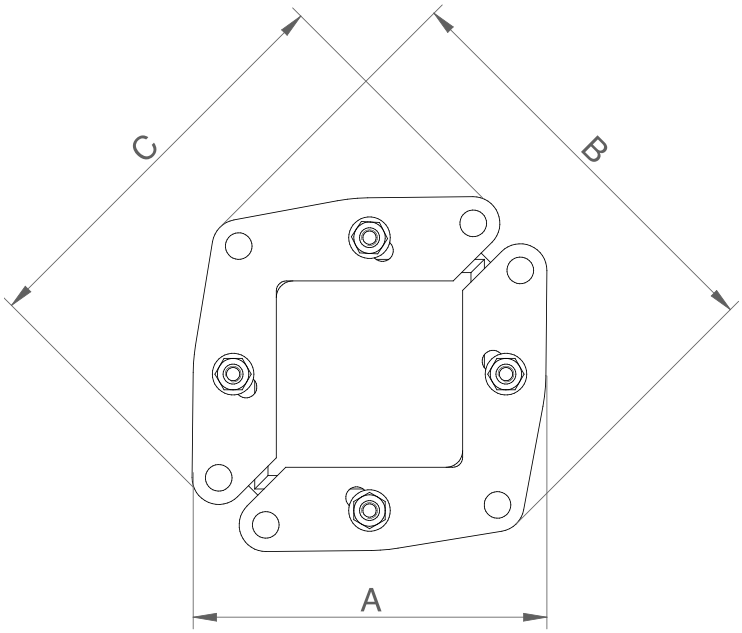
The seal is formed by tightening the compression bolts which expand the system radially with no need of a compression system, and copper tape provides high conductive path from cable screen to earth, avoiding interferences and noise.

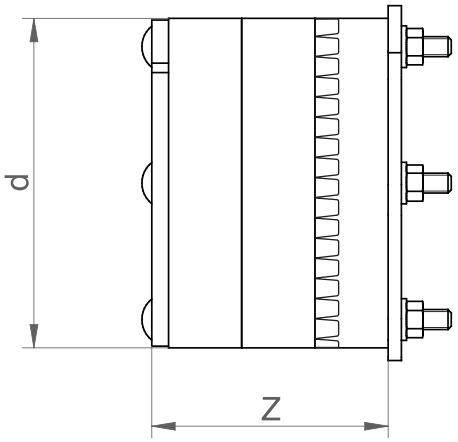
CHARACTERISTICS

- Designed to be installed using Hawke Sleeves (welded, bolted or casted) and EMC HF blocks.
- Manufactured in intumescent elastomer polymer with stainless steel front and back plates. Plates also available in mild steel.
- HRTO is always supplied as an open frame. This enables the frame to be installed after cable/pipe installation.
- No extra tools are required for its installation.
- Ex available under request.









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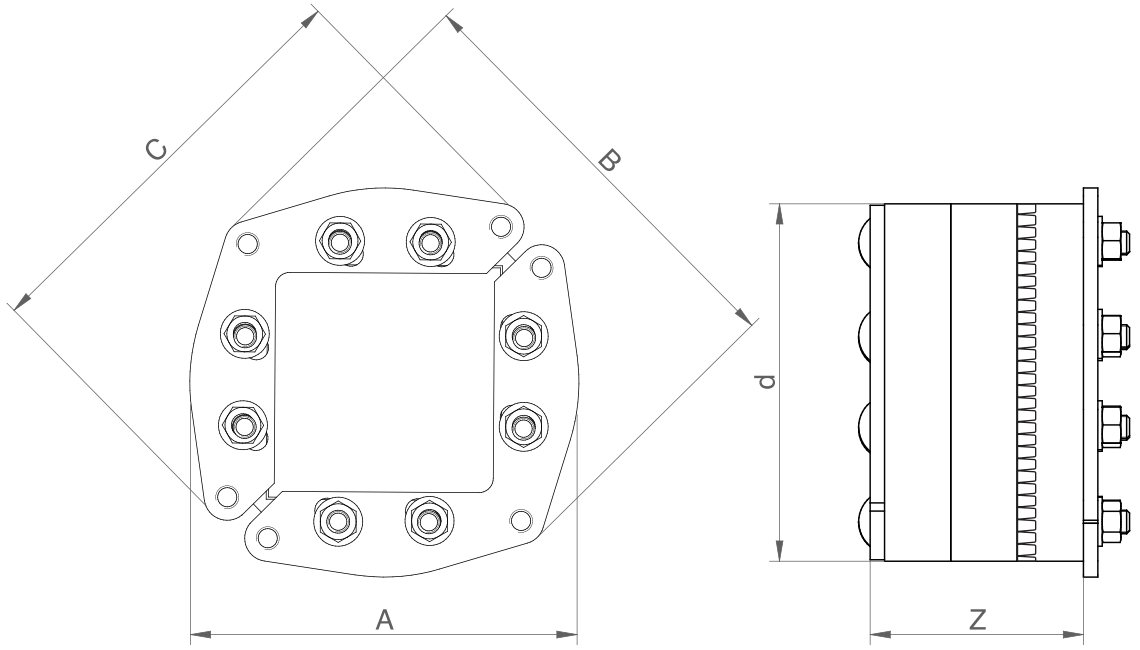
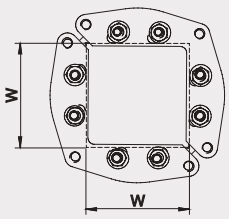
HRTO EMC



DESCRIPTION	SLEEVE SIZE NEEDED	A (mm)	B (mm)	C (mm)	d (mm)	Z (mm)	Weight (kg)
HRTO-30/ES	30	36	-	-	32	64	0,11
HRTO-40/ES	40	46	-	-	40	64	0,15
HRTO-50/ES	50	56	-	-	50	64	0,2
HRTO-70/ES	70	85	105	50	70	70	0,5
HRTO-100/ES	100	108	137	94	100	70	0,8
HRTO-125/ES	125	150	163	124	125	74	0,95
HRTO-150/ES	150	160	187	179	150	74	1,9
HRTO-200/ES	200	210	237	226	200	74	3,7

*All dimensions are nominal values

Sealing Area



TYPE	SEALING AREA (mm)
HRTO-30	15x15
HRTO-40	20x20
HRTO-50	30x30
HRTO-70	40x40
HRTO-100	60x60
HRTO-125	80x80
HRTO-150	90x90
HRTO-200	120x120

Installation references

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HRST EMC

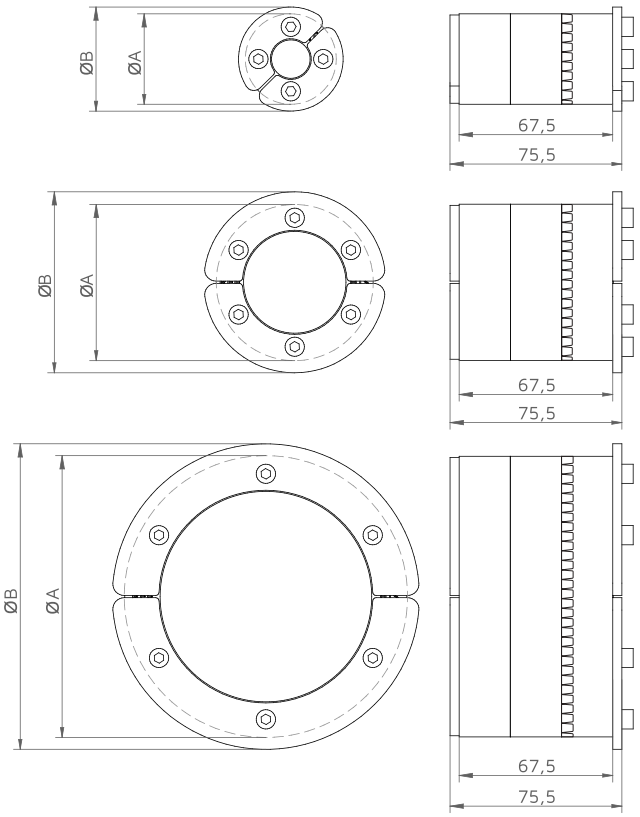
Hawke EMC HRST is a round sealing solution for a single cable/ pipe passing through a wall or bulkhead/deck.

It is to be used when electromagnetic compatibility (EMC) is needed. Copper tape provides a high conductive path from cable screen to earth, avoiding interferences and noise.

Each size of HRST frame can seal a large range of diameters without any onsite modifications.

CHARACTERISTICS

- Available to seal services from 4mm up to 170mm of external diameter, in standard version.
- Designed to be installed using Hawke Sleeves (welded, bolted or casted).
- Manufactured in intumescent elastomer polymer with stainless steel front and back plates. Each HRST frame has a gasket to prevent galvanic corrosion when installed within a mild steel sleeve.
- HRST is always supplied as an open frame. This enables the frame to be installed after cable/pipe installation.
- No extra tools are required for its installation.
- Ex available under request.



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HRST EMC

DESCRIPTION	SLEEVE SIZE NEEDED	SEALING FROM (mm)	SEALING TO (mm)	A (mm)	B (mm)	WEIGHT (kg)	COLOUR
HRST-30/4/ES	30	4	10	32	36	0,16	White
HRST-30/7/ES	30	7	14	32	36	0,15	Red
HRST-30/10/ES	30	10	17	32	36	0,14	Blue
HRST-40/4/ES	40	4	10	40	46	0,24	Purple
HRST-40/7/ES	40	7	14	40	46	0,23	yellow
HRST-40/10/ES	40	10	17	40	46	0,21	Green
HRST-40/17/ES	40	17	24	40	46	0,18	Pink
HRST-50/4/ES	50	4	10	50	56	0,35	Red
HRST-50/10/ES	50	10	17	50	56	0,33	White
HRST-50/17/ES	50	17	24	50	56	0,29	Blue
HRST-50/24/ES	50	24	30	50	56	0,25	Orange
HRST-70/26/ES	70	26	33	69	80	0,56	Purple
HRST-70/33/ES	70	33	39	69	80	0,50	Yellow
HRST-70/39/ES	70	39	45	69	80	0,44	Green
HRST-70/45/ES	70	45	50	69	80	0,38	Pink
HRST-100/48/ES	100	48	55	99	110	0,96	Red
HRST-100/55/ES	100	55	61	99	110	0,87	White
HRST-100/61/ES	100	61	66	99	110	0,79	Blue
HRST-100/66/ES	100	66	71	99	110	0,71	Orange
HRST-125/64/ES	125	64	71	124	135	1,42	Purple
HRST-125/71/ES	125	71	79	124	135	1,27	Yellow
HRST-125/79/ES	125	79	86	124	135	1,12	Green
HRST-125/86/ES	125	86	93	124	135	0,96	Pink
HRST-125/93/ES	125	93	98	124	135	0,84	Orange
HRST-150/93/ES	150	93	102	149	160	1,79	Red
HRST-150/102/ES	150	102	108	149	160	1,63	White
HRST-150/108/ES	150	108	115	149	160	1,43	Blue
HRST-150/115/ES	150	115	120	149	160	1,28	Orange
HRST-175/118/ES	175	118	125	174	185	2,16	Purple
HRST-175/125/ES	175	125	132	174	185	1,93	Yellow
HRST-175/132/ES	175	132	138	174	185	1,72	Green
HRST-175/138/ES	175	138	145	174	185	1,47	Pink
HRST-200/136/ES	200	136	143	199	210	2,73	Red
HRST-200/143/ES	200	143	150	199	210	2,48	White
HRST-200/150/ES	200	150	157	199	210	2,20	Blue
HRST-200/157/ES	200	157	164	199	210	1,92	Orange
HRST-200/164/ES	200	164	170	199	210	1,67	Yellow

*All dimensions are nominal values

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