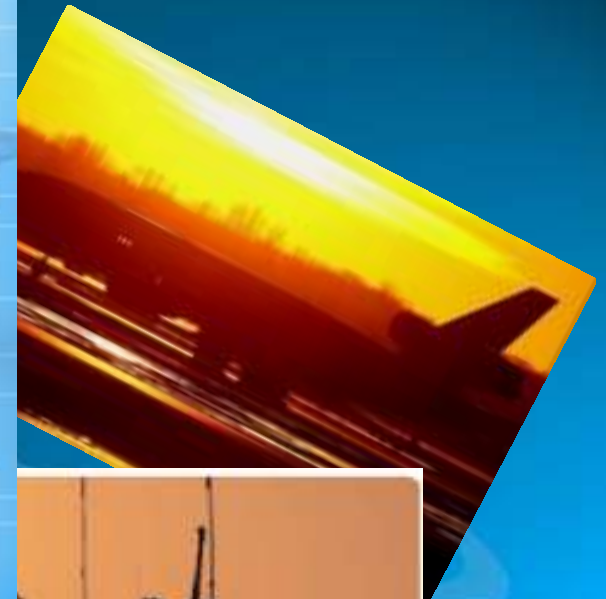


Overview on CLEEVE TECHNOLOGY





Company Introduction

- Privately owned company with offices & separate operating companies in Canada, the UK, Holland, Australia and Germany.
- Subsidiary companies in Canada based in Toronto, London Ont. and Halifax NS.
- Specialize in the supply and integration of electrical interconnect components and assemblies and mechanical/machined parts and enclosures to meet customer specific and/or program requirements.
- ISO 9001 and AS9100 certified
- Direct staff complimented with representatives and support staff in numerous locations

Cleeve Canada Locations



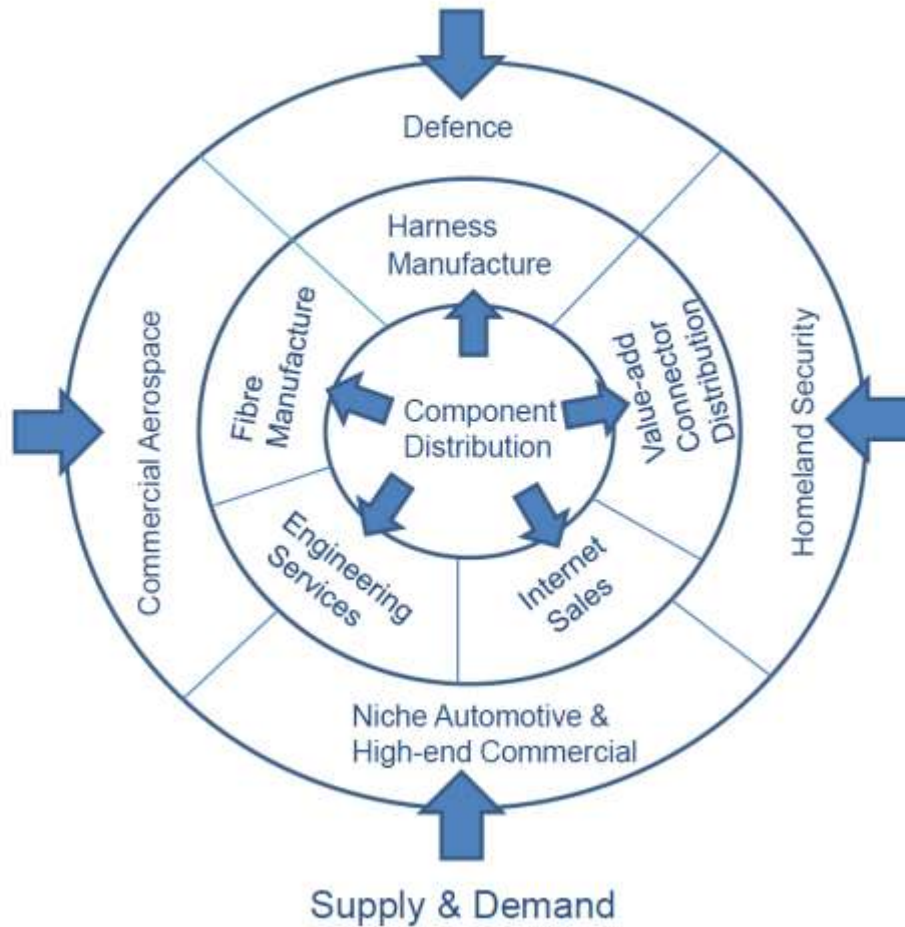
- Business headquarters
- Lead for procurement and materials control
- All accounting and finance controlled from Canada
- Materials distribution for North America



Cleeve UK Location



Business Model – One Stop Shopping – Integrated Services



Mil-Aero



- Specializing in aerospace and data com harnesses
- High performance electrical components
- Control boxes
- Circuit boards



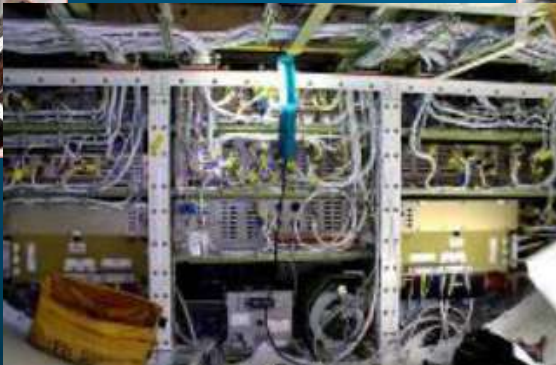
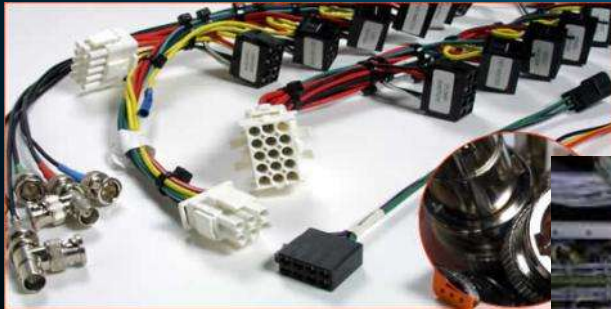
Genesis



Genesis Controls and Cable

95 Bessemmer
London Ontario, Canada

- Specializing in large industrial and heavy machinery cabling
- Battery Cables
- Rail and power cables



SCS



Mechanical Engineering, Design and Manufacturing Services:
3D models and 2D drawings

Fabrication services for machined and sheet metal components and assemblies
Prototype and Production manufacturing

Mature product design improvement and Producibility Studies

Build to Print prototype, pre and full production manufacturing/assembly

SCS provides turn key support from design through to manufacture

Major Canadian Customers



- Heroux Landing Gear.
- General Dynamics
- Department Of National Defence
- NP Aerospace UK
- Enterprise Control Systems.
- Bae
- Lockheed Martin
- Goodrich Aerospace Landing Gear
- Bombardier Aerospace
- Bell Helicopter
- Oerlikon Contraves
- Rolls-Royce PLC



Cleeve Group Plus

- CGP is an **integrated** manufacturing & Supply Solution dedicated to providing a quality, cost effective, on time service.
- CGP is comprised of **complementary** blue chip component manufacturing & assembly companies whose combined products, services and technical expertise are dedicated to providing **one stop shop** project support.

Cleeve “core” strengths



- Where technical competence required.
- Project/material management.
- Primarily based on system strength.
- Design/technical innovation.
- Long term investment.
- Teaming required.
- Off-set/industrial benefits.
- International trade.



Products Overview



Products and Services

- Harness assemblies
- Conduit Systems
- Electrical Connectors
- Heat Shrinkable Products
- Wire and Cable Products
- Shape Memory Alloy Products
- Electrical Interconnect Accessories
- Specialty Machined Components
- Sheet Metal Fabrication





C L E E V E T E C H N O L O G Y I N T E R N A T I O N A L

Product Selection Catalog

for the

HCM/CSI

(Halifax Class Modernization Program)

www.cleevetech.com



Cleeve Engineering and Product Selection Catalog

FELEX Interconnect.

Section

Reference

- 1 Wire and Cable.
- 2 Connectors, Contacts and protection caps.
- 3 Backshells and Adapters
- 4 Heat shrink molded parts
- 5 Conduit, Tubing, EMI shielding and protective sleeving
- 6 Backshell kits, Feedthrough, and sub assemblies
- 7 Panels and brackets, specialty machines parts and assys.
- 8 Harness assemblies.
- 9 Tooling and equipment
- 10 Technical data, installation procedures and specifications.

Contact

solutions@cleevetech.com

web site www.cleevetech.com



Section 1 – Wire and Cable

Cleeve Technology Incorporated is a key supplier of a wide range and selection of high performance wire and cable for military, aerospace, and industrial markets.

Critical systems require high performing wire and cable that is designed to support demanding environments. Cleeve has built a reputation of meeting the highest performance standards in military cable technology.

Wire and cable products are available small, lightweight constructions that remain flexible while meeting the most demanding specifications for operating in hostile environments. These standards include thermal, electrical, and mechanical performance characteristics as well as chemical resistance requirements. Using approved and recognized testing facilities Cleeve is able to ensure all cables are 100% production tested prior to shipment, assuring a requisite level of performance, quality and reliability.

Cleeve produces a variety of cables such as flexible large-gauge power distribution cables, miniature coaxial cables, and a magnitude of multi-core cables. A computer aided design system allows Cleeve to design multi-core cables to individual customer specifications. Whatever your wire and cable needs are Cleeve has or can develop a solution.

Item Number	Cleave Part Number	Total Number of Wires	Average Wire Gauge	Nominal Outer Diameter (mm)	NSN Reference Number (6145-)	Description	Overall Shielding Options: NS (no shield), SS (single shield), DS (double shield), XS (super shield)	Cable Drawing
013	FRCL-7012-02	2	2	29.5	20-004-5959	2 X 2 awg Wires	DS	
014	FRCL-7012S-02	2	2	29.5	20-004-7148	2 X 2 awg Wires	SS	
015	FRCL-7012-04	2	4	25.5		2 X 4 awg Wires	DS	
016	FRCL-7012S-04	2	4	25.5		2 X 4 awg Wires	SS	
017	FRCL-70140A	2	4*	23.5	01-466-9732	2 X 4 awg Wires	SS	
018	FRCL-7012-06	2	6	20.5	20-004-5957	2 X 6 awg Wires	DS	

Item Number	Cleave Part Number	Total Number of Wires	Average Wire Gauge	Nominal Outer Diameter (mm)	NSN Reference Number (6145-)	Description	Overall Shielding Options: NS (no shield), SS (single shield), DS (double shield), XS (super shield)	Cable Drawing
157	FRCL-924602A	6	18	10.0	99-743-0515	3 x 18 awg Pairs	SS	
158	FRCL-931049A	6	18	12.5	01-449-4678	3 x 18 awg Shielded and Jacketed Pairs	NS	
159	FRCL-31049A	6	18	12.5	01-449-4678	3 x 18 awg Shielded and Jacketed Pairs	NS	
160	FRCL-922216A	6	20	13.5	99-724-8829	3 x 20 awg Shielded and Jacketed Pairs	NS	
161	FRCL-940437A	6	20	7.5	99-544-9948	6 x 20 awg Wires	SS	
162	FRCL-982942A	6	20	13.0	99-811-9616	3 x 20 awg Shielded and Jacketed Pairs	SS	

CLEEVE TECHNOLOGY INCORPORATED

Specification Control Drawing

Notes:

- 4 conductor cable
- 8 gauge conductors
- 600 VAC rated
- Meets Mil-W-81044 performance or equivalent.
- Shield is Tinned plated copper, constructed in two layers
- Fillers as required
- Black jacket, resistant to hydraulic and diesel fuels.
- Flame retardant, qualified to VG and MTV standards.
- Outer Jacket performance per M23053/16 or equivalent.



Calculated Nominal Weight Kg/Km	686
Nominal Outside Diameter (mm)	

Part Number:	FRCL Cable Drawing Example	Designer:	p;
Description:	Multi conductor cable	Approval:	
Date:	August 26 2006	Cage Code:	
Revision:	NC	Scale:	

18/1/05 - Information provided is for reference only and Cleeve accepts no responsibility for accuracy or intended use.

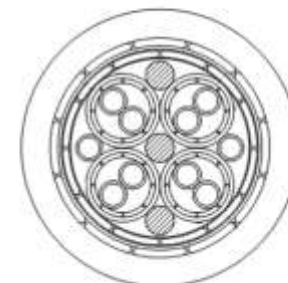


CLEEVE TECHNOLOGY INCORPORATED

Specification Control Drawing

Notes:

- 10 conductor cable
- 22 gauge conductors assembled into shielded twisted pairs
- 600 VAC rated
- M27500-20ML2T08-0/9-9 or equivalent
- Meets Mil-W-81044 and Mil-C-27500 standards.
- Twisted and paired with individual and overall shielding
- Shield is Tinned plated copper
- Fillers as required
- Black jacket, resistant to hydraulic and diesel fuels.
- Outer Jacket performance per M23053/16 or equivalent.



Calculated Nominal Weight Kg/Km	243
Nominal Outside Diameter (mm)	12.1

Part Number:	FRCL Cable Drawing Example	Designer:	Paul Church
Description:	Multi conductor cable	Approval:	
Date:	August 26, 2006	Cage Code:	3AN64
Revision:	NC	Scale:	None

18/1/05 - Information provided is for reference only and Cleeve accepts no responsibility for accuracy or intended use.

Section 2 – Connectors, Contacts and Protection Caps

Cleeve carries an extensive inventory of military, industrial and commercial connectors. These products are managed in our MRP system via the military or commercial part number as well as by a Cleeve spec number which allows us to offer our customers the most competitive pricing and available stock, while only supplying the very highest quality parts manufactured by some of the best electrical interconnect companies in the world.

Connectors can be ordered by the military part numbers and, certificates of compliance and test reports can be provided. Connectors can also be ordered by the manufacturer's part numbers with the same level of supporting documentation available as required.

Alternatively, connectors can be ordered by the Cleeve part number, which allows us the option of supplying the best suited product for each specific need. All parts supplied under the CTI part number are form fit and functionally equivalent and will be based on the specific needs of the end user.



Section 3 – Backshells and Adapters

Backshells often serve more than one purpose in a cable assembly, the three most important of which are strain relief, environmental protection, and EMI protection or grounding. Saddle-bar type strain relief clamps are a common method of providing strain relief, but unfortunately require periodic maintenance and over time will lose their strain relief capabilities. Inadequate strain relief is the number one cause of connector failure. The second most common cause of connector failure is a lack of environmental protection, most often avoided through the incorporation of a boot.

Another important application of backshells is shield termination or grounding. It is extremely important to protect a cable against EMI/EMP/RFI (see section 5). Cleeve has assessed the many technologies and methods available in industry and developed an optimal solution. Cleeve's backshell kits address the above issues and are supplied in a wide variety of material options including, but not limited to, aluminum alloy, bronze, stainless steel, cadmium, olive drab and over electroless nickel. Cleeve provides backshells in straight, 45 degree or 90 degree configurations, all in multiple sizes with multiple connector mating capabilities.

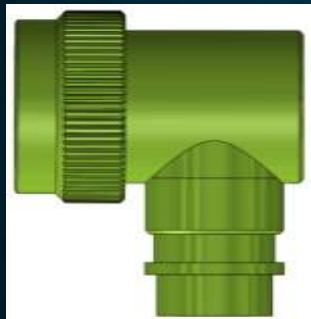


Cleeve Backshell Listing - Straight Configuration



Item Number	Part Number	Mates to connector	Shell Size	Backshell Entry Size	Molded part size	Max Cable Entry Size (mm)	Drawing
001	SB-CAB0-0804-UN40	M26482 series 2, MS3456, FAE and AC347x series	08/09	04	121	6.350	
002	SB-BAB0-0906-UN40	D38999 series 3 and 4, FAE20, FAE24, FAE26	08/09	06	132	9.525	
003	SB-PAB0-1006-UN40	Contact Cleeve	10/11	06	132	9.525	
004	SB-NAB0-1006-UN40	Contact Cleeve	10/11	06	132	9.525	
005	SB-JAB0-1006-UN40	M26482 series 1	10/11	06	132	9.525	

10/11/08 - Information provided is for reference only and Cleeve accepts no responsibility for its accuracy or intended use



Cleeve Molded Parts Listing - Straight Configuration



Item Number	Cleeve Part Number	Description	Fits Backshell Entry
001	FMP-202K121-ELWA	Straight heat shrinkable molded part	04
002	FMP-202K132-ELWA	Straight heat shrinkable molded part	05/06
003	FMP-202K132-ELWA	Straight heat shrinkable molded part	05/06
004	FMP-202K142-ELWA	Straight heat shrinkable molded part	07/08
005	FMP-202K142-ELWA	Straight heat shrinkable molded part	07/08
006	FMP-202K152-ELWA	Straight heat shrinkable molded part	10/12
007	FMP-202K163-ELWA	Straight heat shrinkable molded part	14/16
008	FMP-202K163-ELWA	Straight heat shrinkable molded part	14/16

Section 4 – Heat Shrink Molded Parts

Heat shrinkable molded parts provide strain relief and mechanical and electrical protection for a wide range of applications and environmental conditions. Performance advantages include Abrasion and crush resistance, Excellent performance at high and low temperatures, Superior mechanical protection, Sealing and strain relief.

There is a wide range and variety of molded parts including boots, cable breakouts, transitions, covers, caps, and feedthroughs, all of which come in a variety of configurations and sizes. They are also available in a variety of materials:

Molded parts are used in many applicable and when used together with adhesives are used to provide strain relief, environmental sealing and mechanical protection wherever there is a junction or breakout in a cable harness or to protect cable to backshell connections at connector interface. Heat shrinkable molded shapes are supplied in an expanded form which easily allows cable bundles to be fed through prior to shrinking. For mechanical strength and sealing, transitions need to be installed with an adhesive at each interface. Adhesive options available are pre-coated to molded parts or as separate adhesives in hot melt or epoxy systems.



Section 5 – Conduit, Tubing, EMI Shielding and Protective Sleeving



Electrical wiring is often “protected” by adding a jacket or sleeve or conduit. Often “electrical protection” is also required and needs to be installed. (see following note on EMI)

Heat shrink tubing, Protective sleeving and conduits are commonly used for electrical insulation, cable bundling, color coding, strain relief, wire marking, identification, mechanical protection, corrosion protection, abrasion protection, strain relief, as well as moisture and weather sealing.

Cleeve has material options that conform to all major commercial and military specifications which are available to specific manufacturer’s part numbers, to the applicable military specification part number or to a Cleeve part number.

Materials are available in thin, medium or heavy wall constructions. Other options include melt-and-flow adhesives, weather proofing encapsulants, various colours, lengths and packaging.

Other wire protective options include braided sleeving (expandable braided sleeve) to provide better abrasion resistance and which can expand up to 2 times their nominal size, allowing for easy installation and a high degree of flexibility in the size used.

FRRB pull on EMI shield was developed in an effort to improve the shielding efficiency of ‘pull on’ braids that previously had been dependent on optical coverage as the major means of specification. FRRB optimized shields are manufactured by correct choice of shield parameters such as wire size, number of carriers, number of wires and the braid angle. Optimized shields are best achieved when machined directly onto a cable bundle (which Cleeve is also able to do,) however if this option is not available to the end user a FRRB is a good alternative.

M24758A (SH) Conduit, Fittings and Adapters

NAVSEA Qualified Next Generation Conduit Systems for Harsh Environmental Naval Applications



View Individual Dash Number Datasheets:

M24758-*
(example M24758-B)
EMI/EMP Shielding Conduit



M24758-2
Straight Conduit Fitting



M24758-3
45° Conduit Fitting



M24758-4
90° Conduit Fitting



M24758-5
Straight Conduit to Panel Fitting



M24758-8
Conduit to Conduit Fitting



M24758-9
Adapter for MS3100 Series MIL-DTL-5015 Connectors



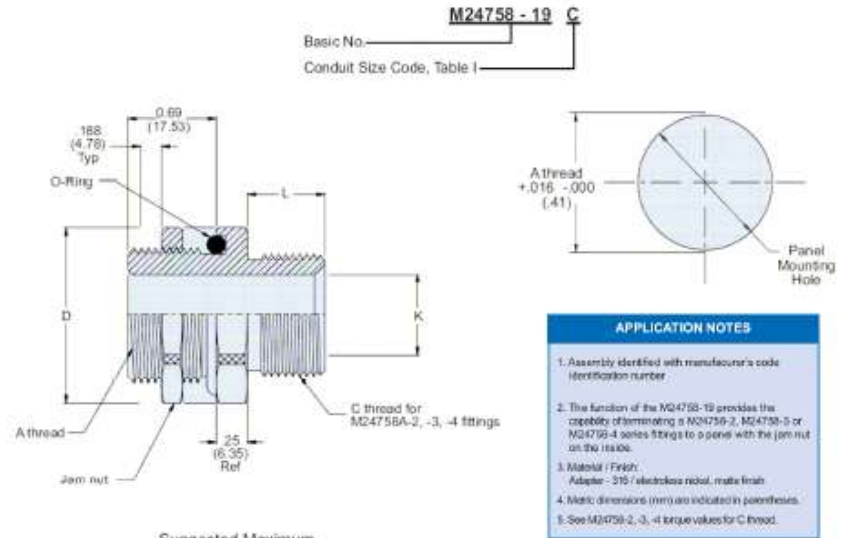
M24758-11
Adapter for Coaxial Connectors



M24758-12
Adapter for MIL-C-26482 Solder Type Series I Connectors



M24758-13
Adapter for MS-3155 Type Connectors



CONDUIT SIZE CODE	A CLASS - 2A THREAD	D DIA	C CLASS - 2A THREAD	L +.03 (.76) -.00	K DIA MIN
A	.625-24 UNEF	1.000 (25.40)	.438-28 UNEF	.21 (5.25)	.245 (6.22)
B	.875-20 UNEF	1.250 (31.75)	.688-24 UNEF	.25 (6.35)	.495 (12.57)
C	1.188-18 UNEF	1.562 (39.67)	.938-20 UNEF	.31 (7.87)	.745 (18.92)
D	1.438-16 UNEF	1.812 (46.02)	1.250-18 UNEF	.37 (9.40)	.995 (25.27)
E	1.750-16 UN	2.125 (53.98)	1.563-18 UNEF	.37 (9.40)	1.245 (31.62)
F	2.000-16 UN	2.375 (60.33)	1.875-16 UN	.43 (10.92)	1.495 (37.97)
G	2.500-16 UN	2.875 (73.03)	2.375-16 UN	.43 (10.92)	1.995 (50.67)
H	3.000-16 UN	3.375 (85.73)	2.875-16 UN	.43 (10.92)	2.495 (63.37)
J	.750-20 UNEF	1.125 (28.58)	.563-24 UNEF	.25 (6.35)	.370 (9.40)
K	1.000-20 UNEF	1.500 (38.10)	.813-20 UNEF	.31 (7.87)	.620 (15.75)
L	3.500-16 UN	1.375 (34.93)	3.375-16 UN	.43 (10.92)	2.995 (76.07)

Section 6 – Backshell Kits, Feedthroughs and Sub Assemblies

Cleeve Value Added Solutions and Capabilities

Cleeve can provide products in component form such as kits, sub assemblies or as finished and tested assemblies. Cleeve can support existing designs, from 'build to print' to suggestions of product improvements and cost saving opportunities through to new designs supported with samples, drawings and test data.

Cleeve can supply any design of backshell or adaptor for interface with connectors, feedthroughs, penetrations or conduit. From simple "saddle clamp" strain relief designs to the most high performance accessories Cleeve will have the solution you need.

Examples of Cleeve "standard" solutions are the SBD and FRKA backshell kit.

SBD and FRKA Adaptor Boot Assemblies

Cleeve's SBD and FRKA are just two of many kits and assemblies for screened and unshielded cables. Each kit contains all the parts required for a specific installation such as a connector adaptor, heat shrinkable molded part and shield termination, all parts well proven in harsh military environments. Installation is simply achieved by coupling the adaptor to the connector, terminating the cable shield (if required) and shrinking the molded part onto the cable with a hot air gun.

The molded part can be supplied with adhesive pre-installed to provide an environmentally sealed assembly and installation. When used in conjunction with screened cables, the assembly provides a high performance electrical termination between the cable screen and the connector.

SBGA and FRFS Feedthrough Assemblies

Cleeve's Cable Feedthrough Systems such as the SBGA and FRFS is available as a one-piece part or as a kit of parts providing environmental sealing and screen continuity to a bulkhead as a cable passes through. The assembly consists of a specifically designed locknut and 'O' ring seal, onto the rear of which is pre-installed heat shrinkable molded parts. Installation is achieved by tightening the locknut on the rear of the bulkhead which compresses the 'O' ring and ensures a small knife edge provides electrical contact between the assembly and the bulkhead. When heat is applied to the molded part, in the form of hot air, a seal to the cable is formed with hot melt adhesive. When used in conjunction with screened cables the assembly contains a conductive adhesive (or alternative shield termination method) which provides electrical continuity between the screen and the bulkhead via an integral shield inside the Molded parts.

FBK Backshell Kit Part Number Selection Guide

The FBK backshell kit is a kit of parts that allows for a cable to be terminated to a connector.



It includes a backshell adaptor that secures to the your selected connector as well as a EMI cable shield termination band, heat shrinkable molded part for strain relief as well as adhesive for sealing to the backshell and cable jacket.

Specifications

Material

As required for compatibility with your selected connector. Typically Aluminum alloy, Cadmium, Olive drab, or Zinc Cobalt over Electroless nickel, navy bronze or Stainless Steel.

Spin coupling backshell adaptor, straight with angled molded part (unless otherwise stipulated)

allows connector keying orientation and re-entry for connector pin repair

Environmental

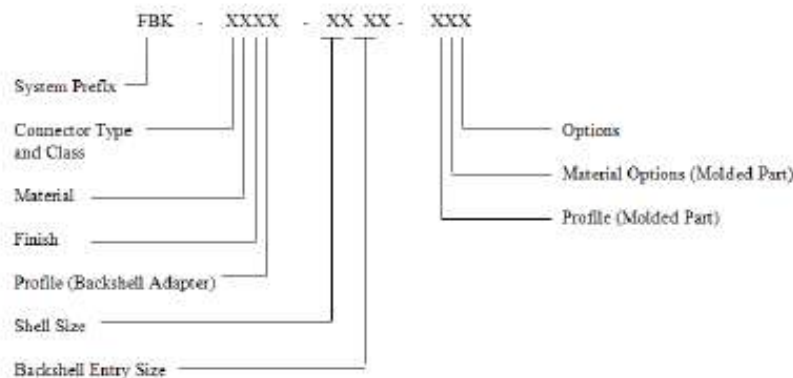
Proper (matched) connector seat with O ring interfacial seal (if required) Anti-rotation teeth (if required) Grove for Heat-shrinkable boot

Shield Termination 360° shield termination

Pull out force: 100 lbs or braid break failure

DC Resistance: < 10 milliohm

Vibration: MIL-STD-167B, para 5.1.3.3.3



Connector Type	Code	Connector Type	Code
D38999 Series I or II	A	M25840 Series	F
D38999 Series III or IV	B	Feedthroughs	K
MS3471 Series I	C	MIL-C-11511	T*
Transition and Breakouts	D	MIL-C-83723	C or 5*
FAE and AC347x Series	C	MIL-C-22992	V*
MS3106 Series	M	M25482 Series 1	J*
MS3456	C	M25482 Series 2	L*
FAE20, FAE24, FAE26	B	All others	See chart

*Check connector code designation letter on backshell selector chart; all others see chart following

Material	Profile
A: Aluminum	0: Straight
B: Stainless steel	1: 45° angle
C: Navy bronze	2: 90° angle (right angle)
C: Composite	3: UN-Bod

Finish
A: Black Anodized per MIL-A-8825
B: Environmental, olive drab cadmium, 500 hr. salt spray
C: Environmental, Electroless Nickel
J: Passivated over Stainless per QQ-P35
D: No Finish (such as on bronze or stainless steel)
B: Shot blast, non reflective
T: Environmental, nonmetallic, MIL-18176S11 performance
J: Environmental, zinc cobalt, 500 hr. salt spray

Shell Size
Code letter: A B C D E F G H J K L M N
Shell size (mm): 9 11 13 15 17 19 21 23 25
Shell size (1/16"): 8 10 12 14 16 18 20 22 24 26 28 30 32

Backshell Entry Size

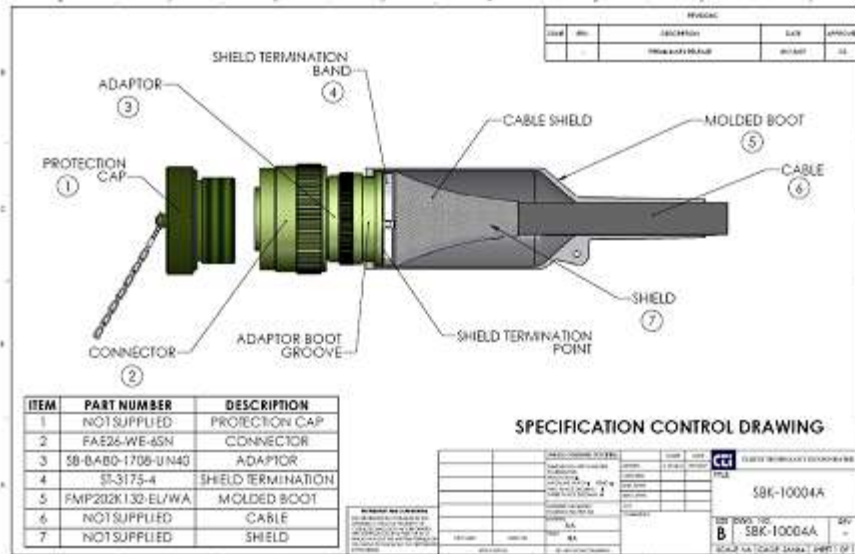
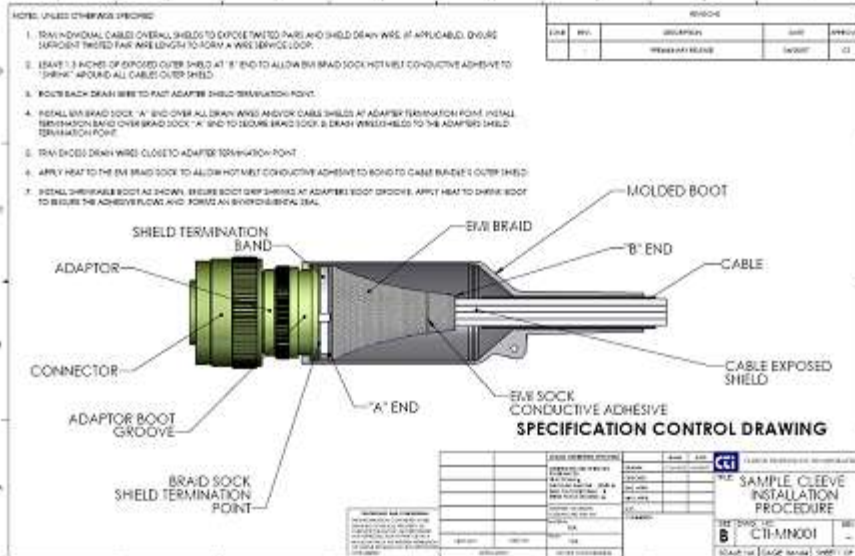
Entry Size	Max Cable Diameter (in)	Entry Size	Max Cable Diameter (in)
04	0.250	12	0.750
05	0.312	14	0.875
06	0.375	16	1.000
07	0.437	18	1.125
08	0.500	20	1.250
10	0.625	22	1.375

Molded Part Material Options
EL: Fluid resistant modified elastomer
VL: Modified fluoropolymer
ZH: Low fire hazard material
PL: Semi-rigid modified polyolefin
PF: Flexible modified polyolefin

Options
As required



Cleeve Installation Procedure and Example of SBK - 10004A



SBK-FAE-26RJ45



Kit #	Components	Qty	Notes	Drawing
SBK-FAE-26RJ45	FAE-26-RJ45FS	1	D38999 style connector with RJ45 insert provision	
	FAE-RJ45FS	1	RJ45 Cat5 insert connector	
	SB-BRJ45-1906-UN40	1	EMI backshell	
	FMP-202K132-ZH/WA	1	Zero hal boot with adhesive	
	SCC-8993P-MPAS	1	Connector protection cap	

Section 7 - Panels, Brackets and Specialty Machined Parts and Assemblies

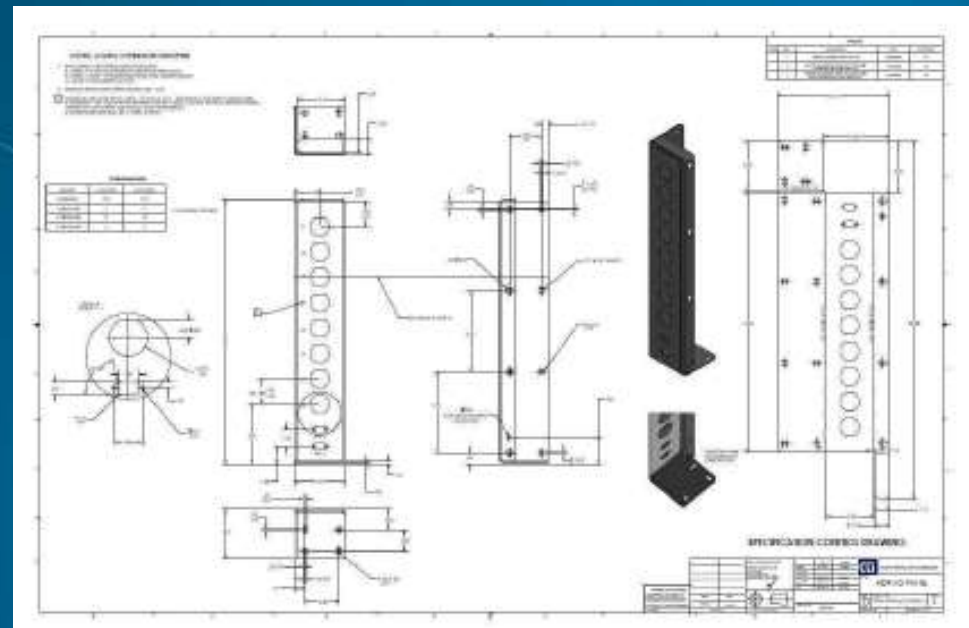
Cleeve is able to offer Mechanical Engineering, Design and Manufacturing Services:

These include:

- Conceptual design providing 3D models and 2D drawings to current Military/industrial/aerospace standards.
- Fabrication services for machined and sheet metal components and assemblies, complex and standard
 - Mechanical Piece Parts/Assemblies, Enclosures, Chassis and Test Boxes
 - Production/Manufacturing Assembly Tooling
 - Tooling/Jigs/Fixtures and Mechanical Test Equipment
- Prototype and Production manufacturing
- Mechanical Packaging
- Mature product design improvement and Producibility Studies
 - Cost effective design analysis incorporating design modifications to avail more economic manufacturing utilizing current processes and procedures to reduce cost and lead times
- Build to Print prototype, pre and full production manufacturing/assembly
- Concurrent Engineering and Advanced Manufacturing

Complementing these capabilities, we can provide turn key support to design, manufacture, finish, assemble and deliver required solutions to specific manufacturing needs or any combination of these requirements on request.

Cleeve have in-house and third party supply partners with high quality machining and sheet metal capabilities and processes including heat treatments, coatings and finishing.



Section 8 - Harness and Cable Assembly and Manufacture

Cleeve is able to offer Electrical Interconnect harness and cable Design and Manufacturing Services:

The Cleeve Group are specialists in high technology electrical interconnect manufacturing solutions. We offer a comprehensive service for the manufacture of complex electronics and electro-mechanical systems, products and sub-assemblies from prototypes through to final production and ongoing product life support. Our rapid prototyping capability enables us to quickly identify manufacturing options which can then be established early in the new product development.

- Complex - high technology - low to medium volumes
- Concept to prototyping to full production
- Low cost manufacturing
- "Rapid" prototyping
- Testing: Functional, safety ATE.

Cleeve has developed best practice manufacturing principles and operates with a lean manufacturing culture and continuous improvement approach resulting in numerous customer approvals along with ISO 9001, and AS9100, Training is to IPC 610 & 620 standards, for both production and repair services.

Cleeve is able to fully support the "system" issues such as compatibility of materials, installation, training and ongoing support. This allows our customers to focus on core competence and not become directly involved in electrical systems other than identifying total requirements and delivery requirements.

Having recognized the need for motivated, flexible manufacturing Cleeve is able to support almost all types of electrical interconnect designs and needs. We have demonstrated our ability to add value in the short term through smart inventory stocking, technical innovation and a highly visible desire to work with customers as a value added, non partisan manufacturing partner.



CRIMP TOOL SELECTION GUIDE



www.cleevetech.com



MIL-C-26482 SERIES 2 STYLE CONNECTORS

CONNECTOR PART NUMBER	DESCRIPTION	SOURCES
FAE3470	WALL MOUNT FLANGE RECEPTACLE	Cleeve Technology International
FAE3471	CABLE CONNECTING RECEPTACLE	
FAE3472	WIDE FLANGE WALL MOUNT RECEPTACLE	
FAE3474	JAM NUT RECEPTACLE	
FAE3475	PLUG HP1	
FAE3476	STRAIGHT PLUG	

CONTACTS	SIZE (AWG)		PIN/SOC.	PART NUMBER* (CURRENT)	PART NUMBER (SUPERSEDED)	WIRE RANGE	
	MATING END	WIRE BAREL					
	12	12	P	M39029/4-11D	M39029/4-12-12	12-14	
	12	12	S	M39029/5-11B	M39029/5-12-12	12-14	
	12	16	P	M39029/4-114	M39029/4-12-16	16-20	
	12	16	S	M39029/5-119	M39029/5-12-16	16-20	
	16	16	P	M39029/4-111	M39029/4-16-16	16-20	
	16	16	S	M39029/5-116	M39029/5-16-16	16-20	
	16	20	P	M39029/4-112	M39029/4-16-20	20-24	
	16	20	S	M39029/5-117	M39029/5-16-20	20-24	
	TYPICAL CONTACT CONFIGURATION	20	20	P	M39029/4-110	M39029/4-20-20	20-24
		20	20	S	M39029/5-115	M39029/5-20-20	20-24

TOOL SELECTION		CRIMP TOOL AND ACCESSORY				ASSEMBLY TOOLS		
BIN*	COLOR	AFB	AFMS	MH850	WA23 (POS)	WA23 (DIE)	INSTALLING	REMOVAL
113	BROWN-BROWN-ORANGE	TH1A					DAK83-12B	DRK83-12B
118	BROWN-BROWN-GRAY	TH1A					DAK83-12B	DRK83-12B
114	BROWN-BROWN-YELLOW	TH1A		86-2			DAK83-12B	DRK83-12B
119	BROWN-BROWN-WHITE	TH1A		86-2			DAK83-12B	DRK83-12B
111	BROWN-BROWN-BROWN	TH1A		86-2			DAK83-16B	DRK83-16B
116	BROWN-BROWN-BLUE	TH1A		86-2			DAK83-16B	DRK83-16B
112	BROWN-BROWN-RED	TH1A	K18	86-2			DAK83-16B	DRK83-16B
117	BROWN-BROWN-VIOLET	TH1A	K15	86-2			DAK83-16B	DRK83-16B
110	BROWN-BROWN-BLACK	TH1A	K15	86-1S			DAK83-20B	DRK83-20B
115	BROWN-BROWN-GREEN	TH1A	K15	86-1S			DAK83-20B	DRK83-20B

*The three number suffix on M39029 series contacts is referred to as a "DIM" code and contact color stripes to determine the correct tool part numbers.

Section 10 – Technical Data, Installation Procedures and Specifications

Cleeve can provide finished and tested products and assemblies to meet specific program or customer requirements, or can provide products to meet Cleeve specifications, such as the harness assembly specification that follows. Cleeve can support existing designs, from build to print to suggestions of product improvements and cost saving opportunities through to new design supported with samples, drawings and test data.



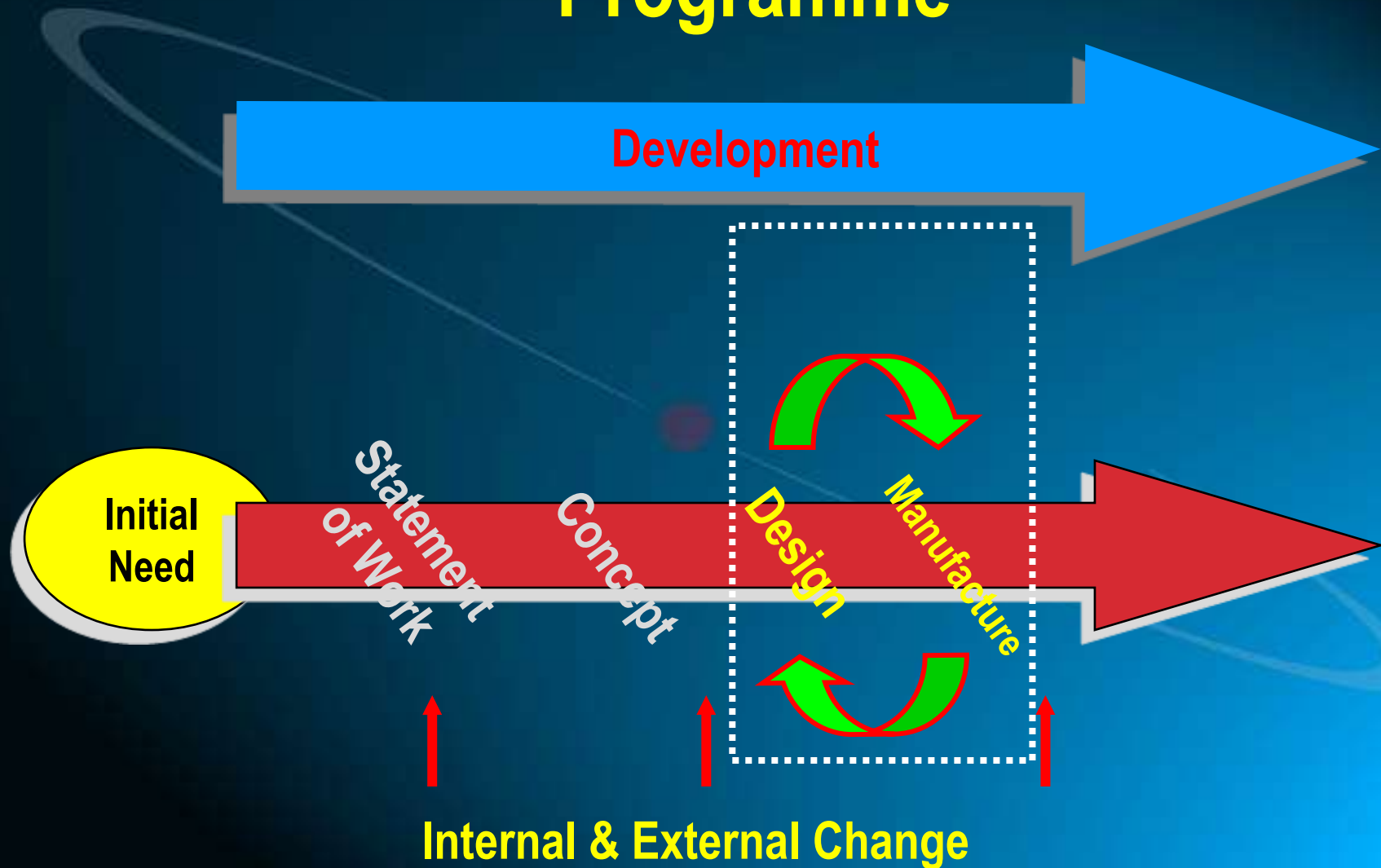
Technical information



Customer Support



Development/Delivery Programme



A Checklist ...

PEDIGREE

- ✓ Management / structure
- ✓ Engineering expertise
- ✓ Quality & Reliability
- ✓ Complex Solutions
- ✓ Logistics systems
- ✓ Financial Controls
- ✓ Cost Reduction
- ✓ Experience

READINESS

- ✓ Space + Facilities
- ✓ People + Training
- ✓ Equipment
- ✓ Materials Supply
- ✓ Database & Comms
- ✓ Technical Information



Cleeve Technology Incorporated

>> *Stay connected.* >>