

# TRUE BLUE®



## LOW LOSS CABLE ASSEMBLIES



**The Answer:** An unmatched combination of low loss, durability, and value.

**The Question:** What does Storm's True Blue® line of cable assemblies provide?

For more than 30 years, our True Blue® assemblies have been the winning choice of design, test, and production engineers for:

- Military and aerospace design-in applications
- General purpose test applications
- Production testing

With a **design based entirely on high-performance materials**, the True Blue® line covers frequencies from DC to 50 GHz.

Assemblies are available in both **custom configurations and a variety of standard** lengths and connector combinations.

The basic True Blue® cable is designed to be durable. However, for applications requiring added durability, assemblies are **also available ruggedized, armored, and soft armored.**

### FEATURES

- ~ Compression resistant low loss, low density dielectric
- ~ Quadraform shielding
- ~ Highly reliable soldered connections
- ~ Various standard connector options and a number of ready-to-ship standard assemblies

### BENEFITS

- ~ Low insertion loss and excellent amplitude stability
- ~ Less prone to damage during handling and installation
- ~ Longer cable assembly life due to greater connector retention
- ~ Laminate construction provides low signal leakage
- ~ Longer cable assembly life due to greater connector retention
- ~ Low insertion loss and excellent amplitude stability
- ~ Reduced lead time for configured assemblies
- ~ Cost-effective, same-day shipment options for standard configurations



**TELEDYNE  
STORM MICROWAVE**  
Everywhereyoulook™

High value microwave and  
electronic interconnect solutions

[www.teledynestorm.com/microwave](http://www.teledynestorm.com/microwave)

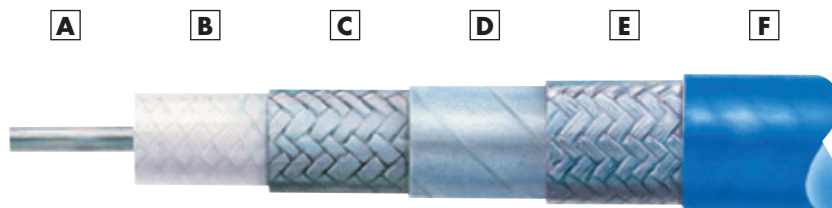
SPECIFICATIONS	TRUE BLUE®			
	125	205	290	420
<b>Cable Designator:</b>	<b>90</b>	<b>90</b>	<b>90</b>	<b>90</b>
Diameter (plain cable, in/mm)	0.125/3.18	0.205/5.21	0.290/7.37	0.420/10.67
Operating Frequency (Max, GHz)	50.0	26.5	18	12.0
Attenuation–Nominal @ 2 GHz (dB/ft)	0.231	0.110	0.078	0.054
Attenuation–Nominal @ 10 GHz (dB/ft)	0.532	0.259	0.185	0.131
Attenuation–Nominal @ 18 GHz (dB/ft)	0.725	0.357	0.257	–
Attenuation–Nominal @ 26.5 GHz (dB/ft)	0.892	0.444	–	–
Attenuation–Nominal @ 50 GHz (dB/ft)	1.262	–	–	–
Power Handling–Avg. (watts @ 1 GHz)	280	750	1400	1700
Phase Stability vs. Temperature (ppm, nominal)	2800	2100	1600	1500
Phase Stability vs. Flex* (degrees @ 18 GHz, nominal)	3.50	3.25	4.50	3.50†
Amplitude Stability vs. Flexure* (dB @ 18 GHz, nominal)	0.01	0.01	0.01	0.01†
Minimum Bend Radius (in/mm)	DYNAMIC	1.25/31.75	2.10/53.34	2.90/73.66
	STATIC	0.50/12.70	1.00/25.40	1.50/38.10
Shielding Effectiveness–Minimum (dB @ 1 GHz)	–90	–90	–90	–90
Weight (grams/ft/m)	8.00/26.25	20.00/65.62	36.00/118.11	85.00/278.87
Temperature Range (°C)	–54 to +150	–54 to +150	–54 to +150	–54 to +150

† At 12 GHz      \* ± 90 degree bends around a:    2"/50.80 mm mandrel    4.5"/114.30 mm mandrel    4.5"/114.30 mm mandrel    8"/203.20 mm mandrel

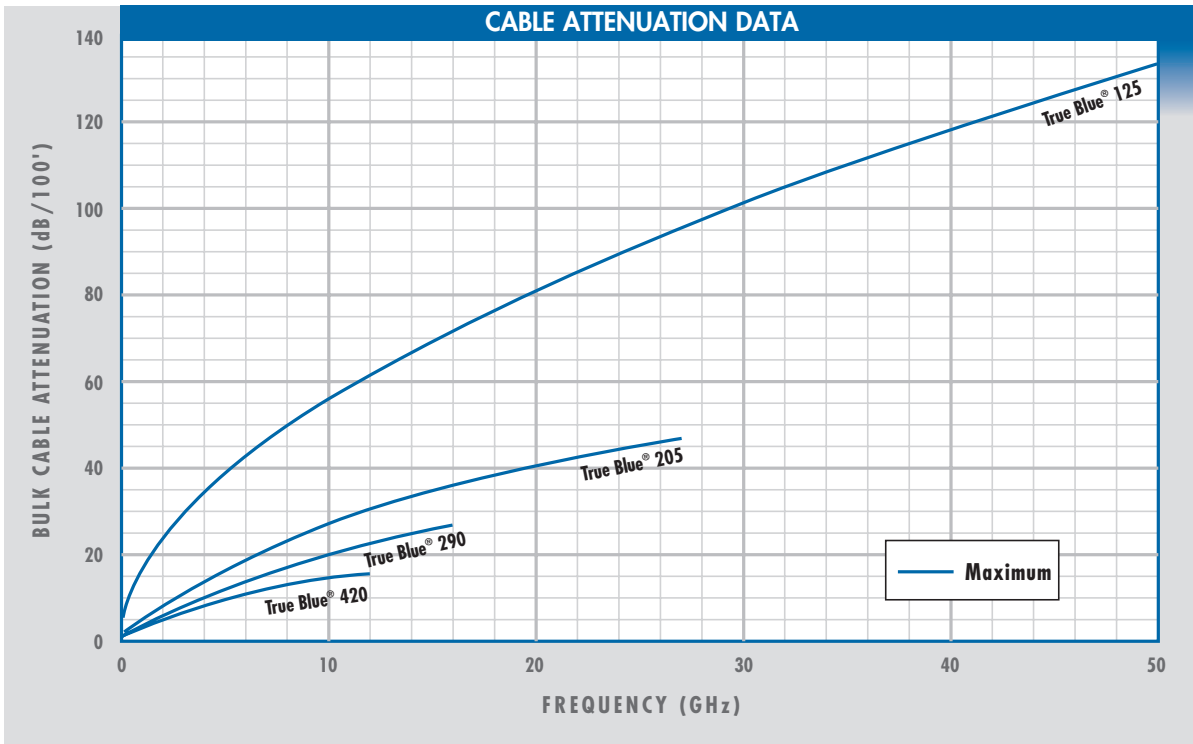
*Specifications subject to change without notice.*

## CABLE CONSTRUCTION

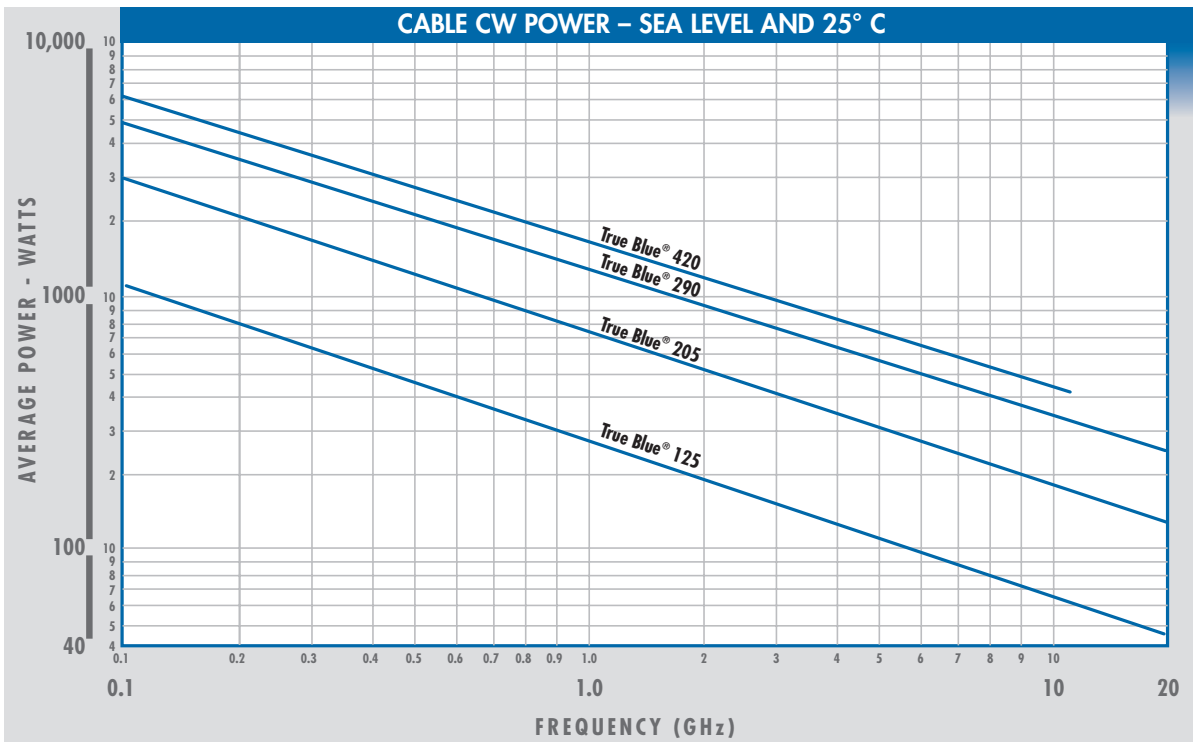
Our flexible low loss microwave cables are built to withstand mechanical abuse without loss of performance. However, for extra rough applications Storm offers the additional protection of ruggedizing, armoring, and soft armoring. A silver-plated copper conductor is insulated with a tough, low density PTFE dielectric that is then shielded with multiple outer conductor layers and insulated with FEP.



- A** Silver-plated (OFHC) copper center conductor
- B** A strong, low density PTFE dielectric
- C** High coverage, silver-plated copper ribbon braid
- D** Overlapped aluminum laminate foil
- E** High coverage silver-plated copper braid
- F** Extruded blue FEP jacket



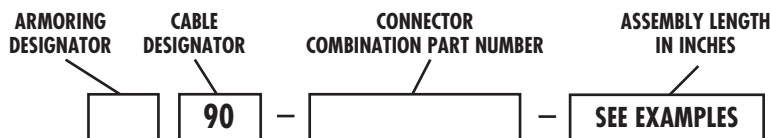
For cable assembly insertion loss, call us or visit our Web site, [www.teledynestorm.com/microwave](http://www.teledynestorm.com/microwave)



■ TRUE BLUE 125 CONNECTOR COMBINATION PART NUMBERS\*

	CONNECTOR OPERATING FREQUENCY							
	50 GHz	40 GHz	26.5 GHz	26.5 GHz	18 GHz	18 GHz	18 GHz	18 GHz
	2.4 mm SP	2.4 mm SJ	2.9 mm SP	2.9 mm SJ	3.5 mm SP	SMA SP	SMA RAP	
50 GHz	2.4 mm SP	1396	1502	1394	2344	2341	2342	2343
	2.4 mm SJ	1502	1648	2348	2349	2345	2346	2347
40 GHz	2.9 mm SP	1394	2348	941	1116	1127	2353	2355
	2.9 mm SJ	2344	2349	1116	942	2352	2354	2356
26.5 GHz	3.5 mm SP	2341	2345	1127	2352	223	2350	2351
18 GHz	SMA SP	2342	2346	2353	2354	2350	011	069
	SMA RAP	2343	2347	2355	2356	2351	069	070

■ ORDERING INFORMATION: Part Number Designation



Armoring Designator: See Back Page  
Leave Blank for Unarmored

CONNECTOR CODES	
SP	Straight Plug
SJ	Straight Jack
RAP	Right-Angle Plug
BFJ	Bulkhead Feedthru Jack

\* Other connector styles available; consult Storm.

EXAMPLES: 90-1396-048 = Unarmored True Blue® 125, 2.4 mm SP to 2.4 mm SP (assembly operates to 50 GHz), 48 inches  
PR90-660-120 = Ruggedized (polyurethane jacket) True Blue® 205, 3.5 mm SP to 3.5 mm SJ (assembly operates to 26.5 GHz), 120 inches

■ TRUE BLUE 205 CONNECTOR COMBINATION PART NUMBERS\*

	CONNECTOR OPERATING FREQUENCY																
	26.5 GHz	26.5 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	18 GHz	4 GHz	4 GHz
	3.5 mm SP	3.5 mm SJ	7mm	SMA SP	SMA RAP	SMA SJ	SMA BFJ	N SP	N RAP	N SJ	N BFJ	TNC SP	TNC RAP	TNC SJ	TNC BFJ	BNC SP	
26.5 GHz	3.5mm SP	221	660	245	246	2399	2400	2401	348	2404	2405	2406	696	2403	697	2407	694
	3.5mm SJ	660	962	2390	824	2408	2409	2410	2415	2416	2417	2418	2412	2413	2414	2419	2470
	7mm	245	2390	222	491	346	313	2391	247	2395	2396	2397	240	2393	2394	2398	2469
	SMA SP	246	824	491	010	066	095	096	077	102	101	103	097	099	098	100	693
	SMA RAP	2399	2408	346	066	067	261	265	264	272	266	255	242	271	2422	238	487
	SMA SJ	2400	2409	313	095	261	079	986	2427	274	2428	2429	2424	2425	2426	2430	2471
	SMA BFJ	2401	2410	2391	096	265	986	080	843	844	2435	2436	2432	2433	2434	2437	2472
	N SP	348	2415	247	077	264	2427	843	088	076	092	093	094	718	340	2454	2476
18 GHz	N RAP	2404	2416	2395	102	272	274	844	076	090	273	576	226	823	2451	2455	2477
	N SJ	2405	2417	2396	101	266	2428	2435	092	273	089	2456	2447	2449	2452	2457	2478
	N BFJ	2406	2418	2397	103	255	2429	2436	093	576	2456	091	227	2450	093	2458	2479
	TNC SP	696	2412	240	097	242	2424	2432	094	226	2447	227	081	086	085	087	2473
	TNC RAP	2403	2413	2393	099	271	2425	2433	718	823	2449	2450	086	083	2448	537	2474
	TNC SJ	697	2414	2394	098	2422	2426	2434	340	2451	2452	093	085	2448	082	2453	2475
	TNC BFJ	2407	2419	2398	100	238	2430	2437	2454	2455	2457	2458	087	537	2453	084	2480
4 GHz	BNC SP	694	2470	2469	693	487	2471	2472	2476	2477	2478	2479	2473	2474	2475	2480	664

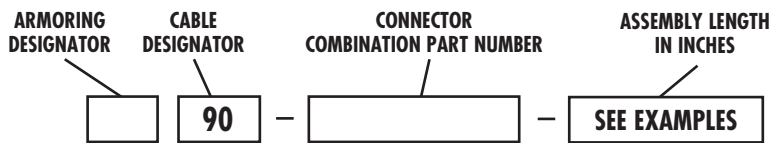
CONNECTOR OPERATING FREQUENCY  
18 GHz

■ TRUE BLUE 290  
CONNECTOR COMBINATION  
PART NUMBERS\*

18 GHz

7 mm	SMA SP	SMA RAP	SMA SJ	SMA BFJ	N SP	N RAP	N SJ	N BFJ	TNC SP	TNC RAP	TNC BFJ	
7mm	220	270	2357	2363	2364	248	434	294	2367	339	2365	2366
SMA SP	270	014	200	199	201	206	208	207	209	202	204	205
SMA RAP	2357	200	189	2358	881	535	388	2362	738	2359	2360	2361
SMA SJ	2363	199	2358	188	2368	538	2372	2373	2374	2369	2370	2371
SMA BFJ	2364	201	881	2368	190	2378	2379	2380	2381	2375	2376	2377
N SP	248	206	535	538	2378	195	214	213	215	216	531	929
N RAP	434	208	388	2372	2379	214	197	2387	2388	217	550	2385
N SJ	294	207	2362	2373	2380	213	2387	196	2389	312	2383	2386
N BFJ	2367	209	738	2374	2381	215	2388	2389	198	218	2384	937
TNC SP	339	202	2359	2369	2375	216	217	312	218	191	211	212
TNC RAP	2365	204	2360	2370	2376	531	550	2383	2384	211	193	2382
TNC BFJ	2366	205	2361	2371	2377	929	2385	2386	937	212	2382	194

■ ORDERING INFORMATION: Part Number Designation



Armoring Designator: See Back Page  
Leave Blank for Unarmored

CONNECTOR CODES	
SP	Straight Plug
SJ	Straight Jack
RAP	Right-Angle Plug
BFJ	Bulkhead Feedthru Jack

\* Other connector styles available; consult Storm.

EXAMPLES: A90-189-048 = Hard Armored True Blue® 290, SMA RAP to SMA RAP (assembly operates to 18 GHz), 48 inches  
90-144-120 = Unarmored True Blue® 420, SMA SP to TNC SP (assembly operates to 12 GHz), 120 inches

CONNECTOR OPERATING FREQUENCY  
12 GHz

■ TRUE BLUE 420  
CONNECTOR COMBINATION  
PART NUMBERS\*

12 GHz

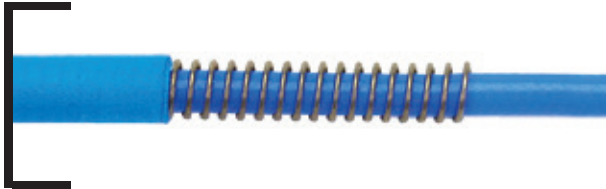
SMA SP	N SP	N RAP	N BFJ	TNC SP	TNC RAP	SC SP	
SMA SP	012	148	150	151	144	146	2332
N SP	148	078	156	157	158	761	2333
N RAP	150	156	139	2337	072	737	2339
N BFJ	151	157	2337	140	159	2335	2338
TNC SP	144	158	072	159	075	153	2334
TNC RAP	146	761	737	2335	153	073	2336
SC SP	2332	2333	2339	2338	2334	2336	2340

### ARMORING & RUGGEDIZING OPTIONS

All options available for True Blue® 205 and True Blue® 290. Other cable types armored or ruggedized on request. Consult us for options.

#### RUGGEDIZED – Polyolefin jacket

Armoring Designator: **R**



For applications requiring a slightly greater amount of compression resistance (300 lbs/in), but where weight and flexibility are also critical. The cable is covered with a flexible wound helix of passivated stainless steel wire and a cross-linked polyolefin jacket.

Temperature: -54° C thru +135° C

**Diameter:** True Blue® 205 – 0.340"/8.64 mm  
True Blue® 290 – 0.405"/10.29 mm

#### RUGGEDIZED – Polyurethane jacket

Armoring Designator: **PR**



For applications similar to the above, where weight, flexibility, and moderate compression resistance (300 lbs/in) are important, but where abrasion resistance is also critical. The cable is covered with a flexible wound helix of passivated stainless steel wire and an extruded polyurethane jacket.

Temperature: -54° C thru +100° C

**Diameter:** True Blue® 205 – 0.360"/9.14 mm  
True Blue® 290 – 0.420"/10.67 mm

#### HARD ARMORED

Armoring Designator: **A**



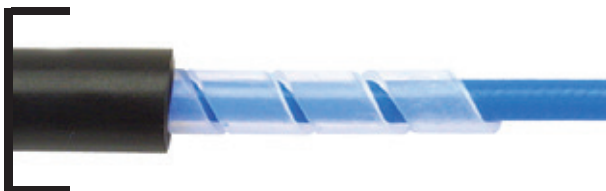
Designed for both inside and outside environments where flexibility and weight are not as critical, but where the application requires the ultimate in cut and crush resistance (500 lbs/in). The cable is covered with a stainless steel interlocked armor; an additional cross-linked polyolefin jacket is standard on lengths up to 50 feet.

Temperature: -54° C thru +135° C

**Diameter:** True Blue® 205 – 0.420"/10.67 mm  
True Blue® 290 – 0.530"/13.46 mm

#### SOFT ARMORED

Armoring Designator: **SA**



For applications requiring abrasion resistance combined with improved compression resistance (400 lbs/in). Product still remains very flexible. The FEP-jacketed cable is protected with a high density polyethylene anti-compression helix (205 only) that is covered with a tough fuel and oil resistant Neoprene® synthetic rubber. Per MIL-R-6855, Class 2, Grade 60.

Temperature: -54° C thru +100° C

**Diameter:** True Blue® 205 – 0.505"/12.83 mm  
True Blue® 290 – 0.470"/11.94 mm