

# Spuma

The flexible low loss standard

Edition 2018/06

New Spuma RS

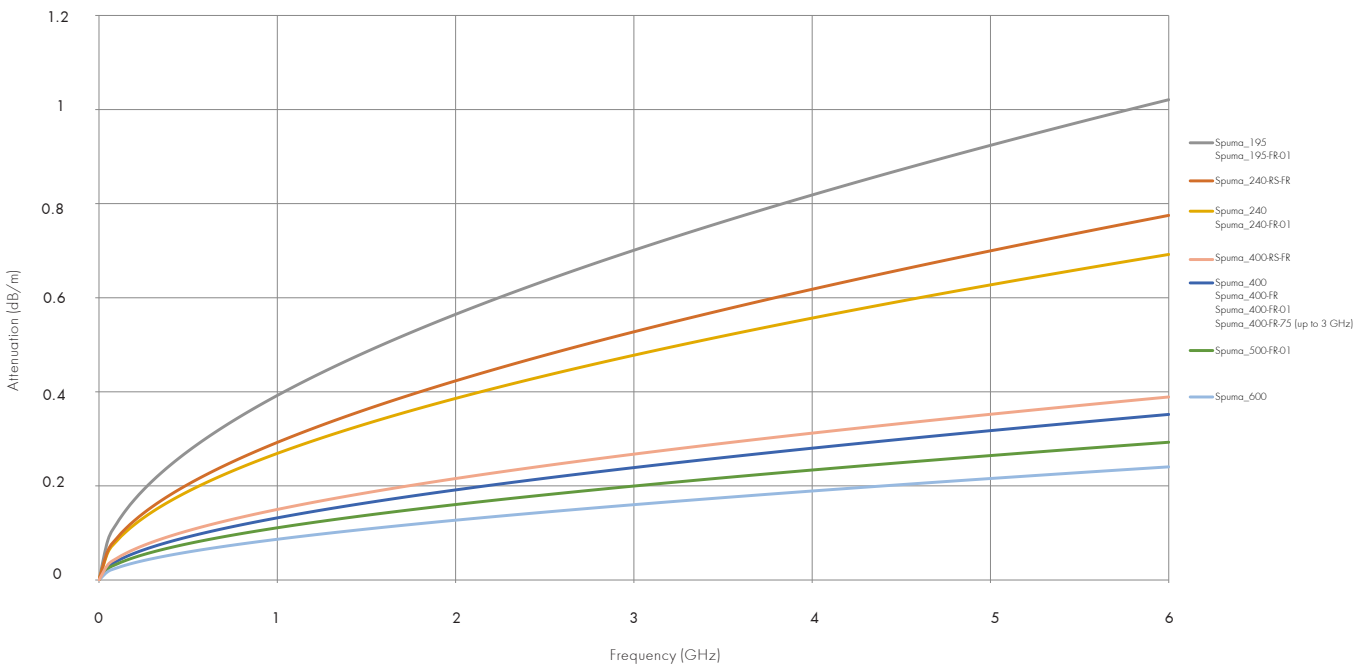


# Spuma

The HUBER+SUHNER Spuma product family stands for lowest loss with halogen free materials. Shielding and VSWR are optimized up to 6 GHz. The cables are more flexible than corrugated ones, allowing easier handling and installation. Tight bending radii are possible. With this set of features, Spuma can support a multitude of application in various industries, including railway, defense, communication, instrumentation and others. Spuma products can also be used as drop-in replacement for LMR<sup>®</sup> (LMR<sup>®</sup> is a brand of Times Microwave Inc.).

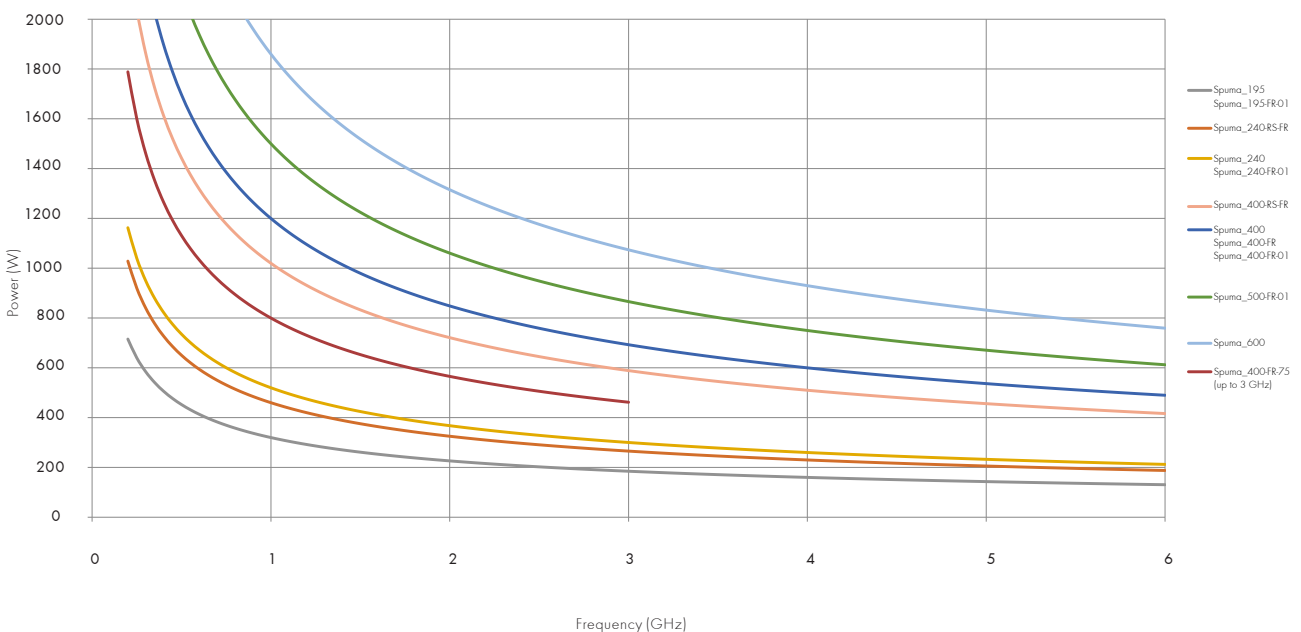
## Attenuation

Typical values at 20 °C ambient temperature and sea level



## CW power

Max. values at 40 °C ambient temperature and sea level





✓ 6 GHz

✓ Excellent VSWR

✓ Low loss

✓ Flexible

✓ Halogen free

✓ Excellent shielding

## Spuma

Most cost effective

The standard Spuma cables provide the full range of benefits of the series for general use applications.



### Benefits

- Outdoor use

### Markets

- Communication
- Defense

## Spuma FR

Flame retardant

The flame retardant Spuma cables provide great flame retardancy making the range viable for rolling stock and indoor applications.



### Benefits

- Outdoor and indoor use
- Railway approved:
  - EN 45545-2
  - NFPA 130

### Markets

- Railway
- Defense
- Communication
- Industrial

## Spuma RS FR

Rotary swaged & flame retardant

The patented rotary swaging technology (low-loss strand) allows to overcome the common trade-off between flexibility and low attenuation. Furthermore, the new TPU jacket material provides flame retardancy without compromising on flexibility.



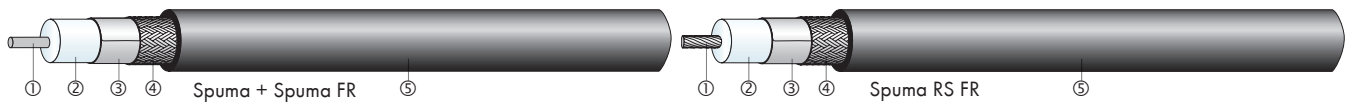
### Benefits

- Outdoor and indoor use
- Highly flexible

### Markets

- Defense
- Instrumentation

# Spuma - portfolio overview



	Spuma_195 84151727	Spuma_195-FR-01 85021562	Spuma_240 84151737	Spuma_240-FR-01 85021563	Spuma_240-RS-FR 85089188	Spuma_400 84102703	Spuma_400-FR-01* 84132035	Spuma_400-RS-FR 85089191	Spuma_500-FR-01 85021564	Spuma_600 84151738	Spuma_400-FR-75 85022187
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## Construction

Construction												
		Spuma_195 84151727	Spuma_195-FR-01 85021562	Spuma_240 84151737	Spuma_240-FR-01 85021563	Spuma_240-RS-FR 85089188	Spuma_400 84102703	Spuma_400-FR-01* 84132035	Spuma_400-RS-FR 85089191	Spuma_500-FR-01 85021564	Spuma_600 84151738	Spuma_400-FR-75 85022187
1 Centre conductor	Cu wire	•	•	•	•							
	Al/Cu wire						•	•	•	•	•	
	Cu low loss strand					•			•			
2 Dielectric	Foamed PE	•	•	•	•	•	•	•	•	•	•	
3 Inner shield	Al-PES foil	•	•	•	•	•	•	•	•	•	•	
4 Outer shield	Tin plated copper braid	•	•	•	•	•	•	•	•	•	•	
5 Jacket	PE	•		•			•			•		
	LSFH		•		•			•	•		•	
	TPU					•			•			
	Diameter (mm)	4.95	4.98	6.15	6.17	6.17	10.3	10.3	10.3	12.8	15	10.3
Diameter (in)	0.195	0.196	0.242	0.243	0.243	0.404	0.404	0.404	0.503	0.590	0.404	

## Electrical

Impedance	Ω	50 +/-2										75 +/-3
Operating frequency	GHz	<6										3
Screening effectiveness up to max. op. freq.	dB	>90										
Attenuation at max. operating frequency	dB/m	1.02	0.69	0.78	0.35	0.39	0.29	0.24	0.25			
	dB/ft	0.31	0.21	0.24	0.11	0.12	0.09	0.07	0.12			
Power at 1 GHz, 40°C ambient temperature	W	160	240	230	600	510	750	930	400			

## Mechanical

Bending static	mm	12.5	10	19	14	14	25	25	25	34	38	25
	in	0.49	0.39	0.75	0.55	0.55	0.98	0.98	0.98	1.34	1.50	0.98
Bending repeated	mm	50	40	60	53	53	100	100	100	130	152	100
	in	1.97	1.57	2.36	2.09	2.09	3.94	3.94	3.94	5.12	5.98	3.94

## Environmental

Operating temperature	°C	-40 to +85										
Installation temperature	°C	-20 to +60										
Halogen free		•	•	•	•	•	•	•	•	•	•	•
RoHS	2011/65/EC	•	•	•	•	•	•	•	•	•	•	•
CPR	EN 50575	Fca	Eca	Fca	B2ca	**	Fca	Cca	**	Eca	Fca	**
Railway approvals	EN 45545-2		•		•			•		•		•
	NFPA-130		•		•			•		•		•

\* UL recognized alternative available: Spuma\_400-FR (84040210) \*\*To be tested on request

# Spuma - connector overview

Cable type Connector	Connector pattern	Spuma_195 Spuma_195-FR-01	Spuma_240 Spuma_240-FR-01	Spuma_240-RS-FR	Spuma_400 Spuma_400-FR Spuma_400-FR-01	Spuma_400-RS-FR	Spuma_500-FR-01	Spuma_600	Spuma_400-FR-75
	Cable group	X27	X28	X34	U30	X32	X31	X29	X33
7/16	11		•		•			•	
	16				•	•			
	24				•				
BNC	11		•	•	•	•			
	16		•	•	•	•			
	24		•	•					•
N	11	•	•		•	•	•	•	
	16	•	•	•	•	•	•	•	
	21	•	•		•	•	•		
	24	•	•		•	•			
QMA	11		•	•					
	16		•	•					
	21		•						
QN	11		•	•	•	•	•		
	16		•	•	•	•			
	24		•	•	•	•			
XQN	11		•	•					
SMA	11	•	•	•	•				
	16	•	•	•	•	•			
	21		•						
TNC	11	•	•	•	•	•			
	16		•	•	•	•			
	21		•		•	•			
	24	•	•		•	•			

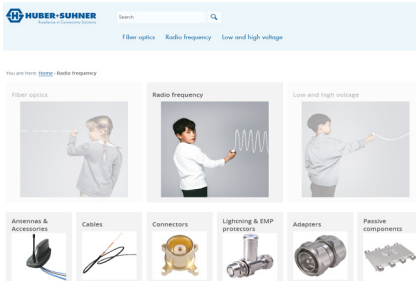
11 straight cable plug (male)	16 right angle cable plug (male)
21 straight cable jack (female)	24 straight panel bulkhead cable jack (female)



Detail view Spuma\_400-RS-FR showing patented Rotary Swaging technology

# Cable and assembly tools

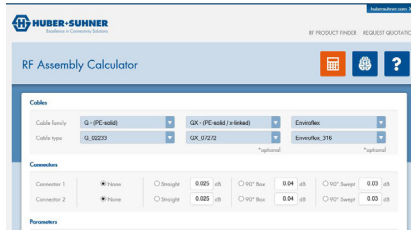
## 1. EVALUATE with our product finder



Choose suitable cables by using our «E-catalogue».

<https://ecatalog.hubersuhner.com/>

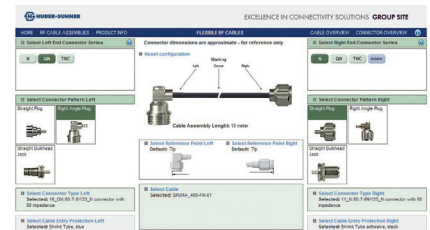
## 2. CALCULATE with the assembly calculator



Compare the suitable products and calculate the electrical performance by using the «RF assembly calculator».

<http://rfcablecalc.hubersuhner.com>

## 3. CONFIGURE with the assembly configurator



By using the «RF assembly configurator» you can define the complete assembly.

<http://rfwebpcf.hubersuhner.com>

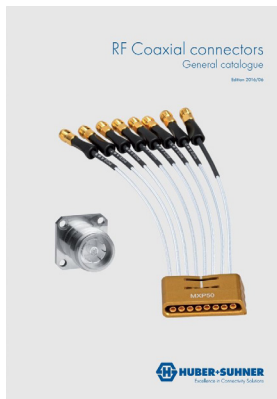
# Catalogues

## RF Cable catalogue



<http://literature.hubersuhner.com/Technologies/Radiofrequency/RFCablesEN/>

## RF Connector catalogue



<http://literature.hubersuhner.com/Technologies/Radiofrequency/RFCConnectorsEN/>

## MW Cable assembly catalogue



<http://literature.hubersuhner.com/Technologies/Radiofrequency/MicrowavcablesEN/>

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### Waiver

Facts and figures herein are for information only and do not represent any warranty of any kind.