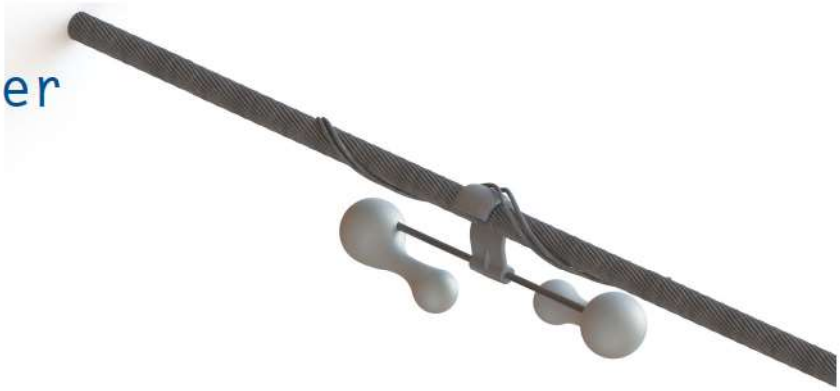
PREFORMED LINE PRODUCTS
The connection you can count on.

Dogbone®
Vibration Damper



General Recommendations

Damping devices are designed for the single purpose of reducing or minimising vibration, which damages conductors – whether current-carrying, earthing or staying – at the point of suspension or attachment, especially if conductors are suspended in suspension arrangements that apply radial stresses in a concentrated form. After many years of research and experience, we have developed a damper efficient enough to enable us to extend our range of vibration dampers beyond the achievements to date.

The DOGBONE® vibration damper is an advanced and completely new form of the accepted "STOCKBRIDGE" or "MONROE & TEMPLIN" dampers. It has a damping efficiency as high as 70% in the 12-40 Hz range as compared to a 40% efficiency in the range 11-13 Hz accepted for the traditional damper. In addition to the two ranges covered and by virtue of the weight design and positioning on the messenger, we are able to increase the energy absorption of the damper by applying a torsional stress to the messenger.

Catalogue No.: DVD

Features of the DOGBONE® Damper:

The damper is secured to the conductor by the well-known and successful Preformed retaining rods. This securing method has several advantages:

1. No concentrated radial stresses are set up under the clamp.
2. The complete elimination of dampers "wandering" up or down the line and causing conductor damage.
3. Installation or removal may be carried out, without shut-down of the line, by hot-stick application.

The design completely eliminates any moisture build up and is therefore again superior to the conventional damper as far as corrosion is concerned.

The neoprene pad between damper and conductor offers the conductor protection from abrasion from the damper clamp at the attachment point.

And last but not least, no tools are required for the installation of the DOGBONE® damper.

Application: Although it is possible, through laboratory and field studies, to evaluate the capability of dampers (of any design) and to compare the efficiency of one against another, the science is not such that a standard yardstick can be developed to indicate the number of dampers which should be used on a line or span.

Since there are many variable characteristics involved in a particular line, the vibration phenomenon is influenced by these characteristics. A theoretical evaluation to determine the number of dampers can be done, but only for individual installations. In the case of the DOGBONE®, tests have shown that it is more efficient than the Stockbridge type dampers.

It is therefore standard practice to evaluate the number of dampers for a given line design in each case.

Material: The attachment clamp is a high grade aluminium alloy.

The messenger is 19 strands of high carbon steel.

The weights are of high grade Zinc. BS 1004A. The retaining rods are made from our usual high grade aluminium alloy used on all PREFORMED™ fittings.

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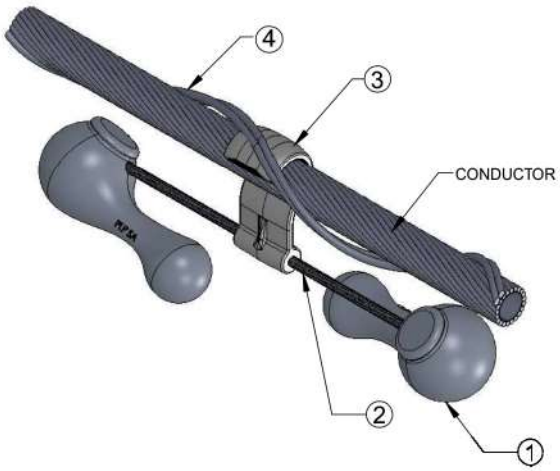
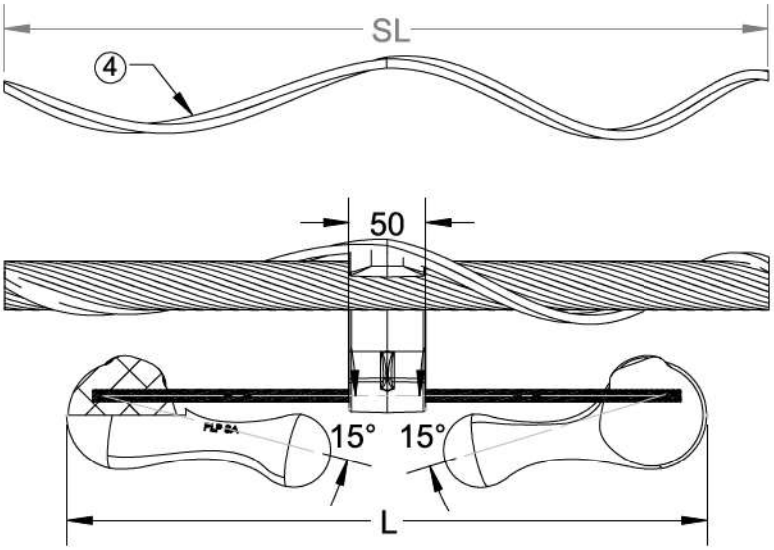
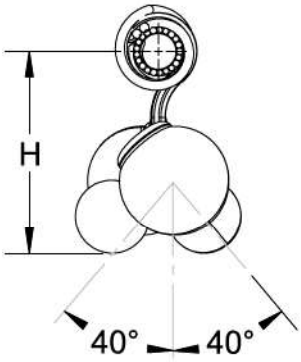
ITEM NO.	DESCRIPTION	MATERIAL
1	Dogbone weight	Zinc
2	Messenger cable	Galv. Steel
3	Aluminium hook with neoprene pad	Aluminium and Neoprene
4	Helical attachment rods	Aluminium







DAMPER CAT. NO.	ATTACHMENT RODS CAT. NO.	COND. RANGE (mm)	CONDUCTOR NAME	ATTACHMENT RODS COLOUR CODE	ATTACHMENT RODS SHOP LENGTH SL (mm)	ATTACHMENT RODS WIRE DIAMETER (mm)	MASS INCL. RODS (KG)	LENGTH L (mm)	HEIGHT H (mm)
	DVDRD 756-766	19.20 – 19.46	Jaguar	Black	739	6.35	4.3		
	DVDRD 767-814	19.48 – 20.68	Lynx	Green	799	6.35	4.3		
DVD 7110	DVDRD 815-845	20.70 – 21.46	Panther	Brown	788	6.35	4.3		132
	DVDRD 846-907	21.49 – 23.04	Sycamore	Yellow	820	6.35	4.3		
	DVDRD 908-942	23.06 – 23.93	Bear	Orange	891	6.35	4.3		
	DVDRD 943-976	23.95 – 24.79	Upas	Green	918	7.62	4.3	407	
	DVDRD 977-1016	24.82 – 25.81	-	Blue	972	7.62	4.3		
DVD 9430	DVDRD 1017-1035	25.83 – 26.29	Goat	Black	1026	7.62	4.3		190
	DVDRD 1036-1064	26.31 – 27.03	Centipede, Tern	Blue	1047	7.62	4.3		
	DVDRD 1065-1098	27.05 – 27.89	-	Grey	1069	7.62	4.3		
	DVDRD 1099-1139	27.91 – 28.93	Zebra	Yellow	1117	7.62	6.4		
	DVDRD 1140-1161	28.96 – 29.49	-	Blue	1139	7.62	6.4		
	DVDRD 1162-1208	29.51 – 30.68	Scorpion	Green	1166	7.62	6.5		
DVD 1114	DVDRD 1209-1269	30.71 – 32.23	-	Brown	1220	7.62	6.5	437	200
	DVDRD 1270-1327	32.26 – 33.71	-	Black	1295	7.62	6.5		
	DVDRD 1328-1390	33.73 – 35.31	-	Grey	1339	7.62	6.5		
	DVDRD 1391-1440	35.33 – 36.58	Dinosaur,Bersford	White	1403	7.62	6.5		

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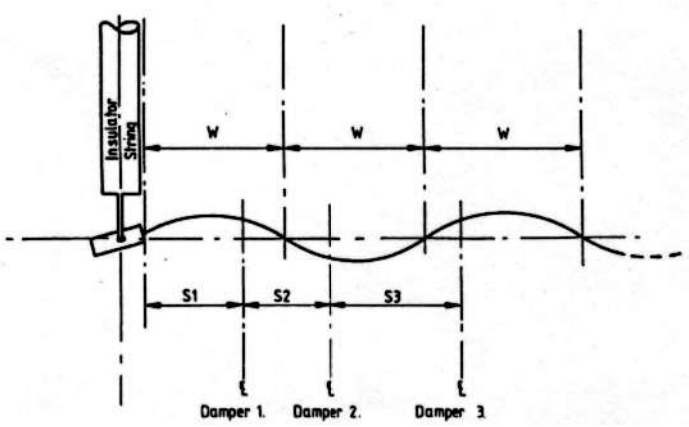

PLP method to determine asymmetrical stockbridge damper placement

W = Loop Length (m)

F = Frequency (Hz)

V = Wind velocity (m/s) [For worst case condition assume V = 6.7m/s]

D = conductor diameter (mm)

T = Conductor tension (N)

M = Conductor mass per unit length (kg/m)

Frequency, $F = \frac{185.V}{D}$ Loop Length, $W = \frac{1}{2F}\sqrt{\frac{T}{M}} = \frac{D}{2479}\sqrt{\frac{T}{M}}$

First damper placement: $S1 = 0.7xW = (2.82x10^{-4}).D.\sqrt{\frac{T}{M}}$

Second damper placement: $S2 = 0.6xW = (2.42x10^{-4}).D.\sqrt{\frac{T}{M}}$

Third damper placement: $S3 = 0.9xW = (3.63x10^{-4}).D.\sqrt{\frac{T}{M}}$

For suspension fittings with armour rods, the first damper should be placed such that the gap between ends armor rods and damper attachment rods is 50mm.

NUMBER OF MRSD REQUIRED PER SPAN	NUMBER OF DVD REQUIRED PER SPAN
1 at each end up to 150m span	1 at each end up to 369m span
2 at each end up to 550m span	2 at each end up to 550m span
3 at each end up to 730m span	3 at each end up to 730m span

FOR LONGER SPANS PLEASE CONTACT PLP. A calculator based on the above theory is available for customers on request.