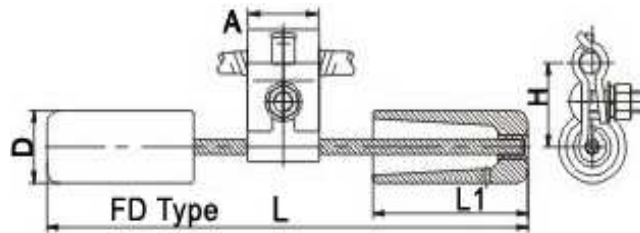




## Protection Fittings

Protection fittings are mainly used to restrain vibration of conductors and ground wires for overhead lines, as well as to grade and shield the insulator string of 330kV and above transmission lines and substation.

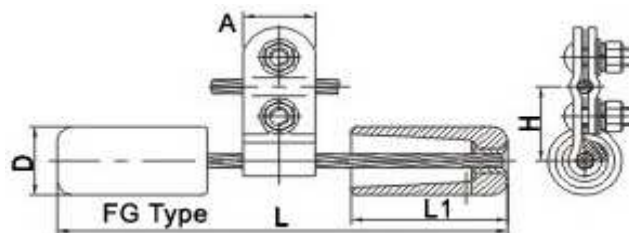
### 1. FD type Vibration Damper



Catalog No.	Applicable Conductor Section Area (mm <sup>2</sup> )		Main Dimensions (mm)			Weight (kg)
	Steel Wire	AAC & ACSR	L	D	H	
FD-1	-	35~50	300	40	40	1.5
FD-2	-	70~95	370	46	55	2.4
FD-3	-	120~150	450	56	65	4.5
FD-4	-	185~240	500	62	70	5.6
FD-5	-	300~400	550	67	70	7.2
FD-6	-	500~630	550	70	75	8.6

The counter weights of Damper are made of Gray Iron Painted or Hot Dip Galvanized, and other parts are made of Hot Dip Galvanized steel.

### 2. FG type Vibration Damper

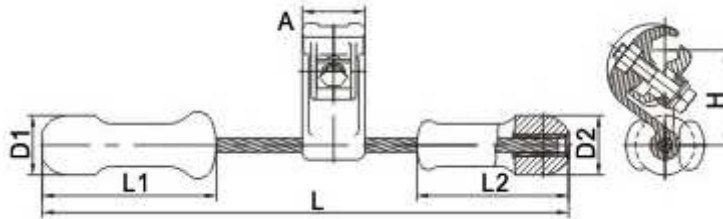


Catalog No.	Applicable Conductor Section Area (mm <sup>2</sup> )		Main Dimensions (mm)			Weight (kg)
	Steel Wire	AAC & ACSR	L	D	H	
FG-35	35	-	300	42	50	1.8
FG-50	50	-	350	46	50	2.4
FG-70	70	-	400	56	60	4.2
FG-100	100	-	500	62	65	5.9

The counter weights of Damper are made of Gray Iron Painted or Hot Dip Galvanized, and other parts are made of Hot Dip Galvanized steel.



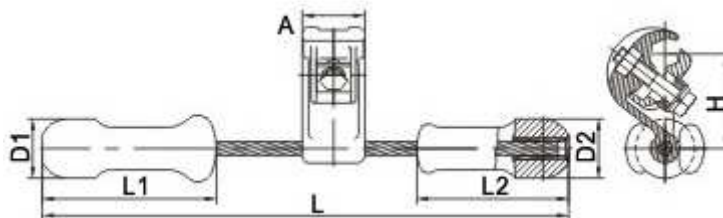
### 3. FR type Stockbridge Vibration Damper



Catalog No.	Applicable Conductor (mm)	Main Dimensions (mm)							Weight (kg)
		D1	D2	A	H	L1	L2	L	
FR-1	7.00~12.0	48	48	50	81	138	118	429	2.68
FR-2	11.0~22.0	48	48	50	81	138	118	429	2.78
FR-3	18.0~28.0	57	57	60	91	167	146	505	4.97
FR-4	23.0~36.0	64	64	60	97	218	163	550	7.50
FR-9	38.0~44.0	84	84	60	97	342	259	770	14.9

The body and keepers are made of Aluminum Alloy; counter weight is made of Gray Iron, Hot Dip Galvanized. Other parts are made of Hot Dip Galvanized Steel.

### 4. FR type Stockbridge Vibration Damper

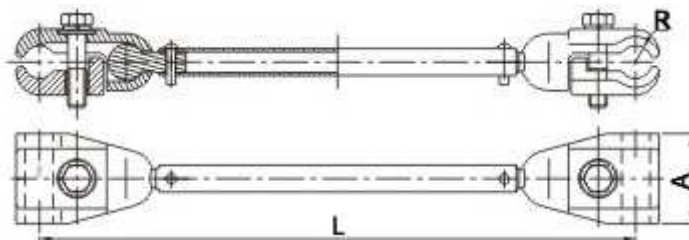


Catalog No.	Applicable Conductor (mm)	Main Dimensions (mm)				Weight (kg)
		A	H	L1	L	
FDZ-1	35~50	50	60	120	330	1.8
FDZ-2	70~95	50	60	130	350	2.3
FDZ-3	120~150	55	65	150	430	4.2
FDZ-4	185~240	55	65	150	470	5.1
FDZ-5	300~500	60	90	180	520	7.0
FDZ-6	600~630	60	90	196	550	8.9

The clamp is Aluminum Alloy; counter weight is Gray Iron Painted or Hot Dip Galvanized. Other parts are made of Hot Dip Galvanized Steel.



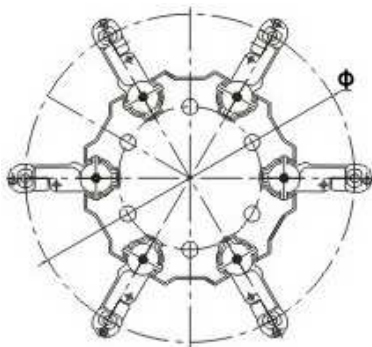
### 5. FJQ type Spacers Dampers for Double Conductors



Catalog No.	Suitable Conductor Section Area (mm <sup>2</sup> )	Main Dimensions (mm)			Load (≥kN)	Weight (kg)
		A	R	L		
FJQ-204	185~240	60	11.0	200	7	0.87
FJQ-205	300~400	60	14.5	200	10	0.91
FJQ-404	185~240	60	11.0	400	7	1.04
FJQ-405	300~400	60	14.5	400	10	1.08
FJQ-455	300~440	60	15.4	500	10	2.45

The clamp is Aluminum Alloy and other parts are Hot Dip Galvanized Steel.

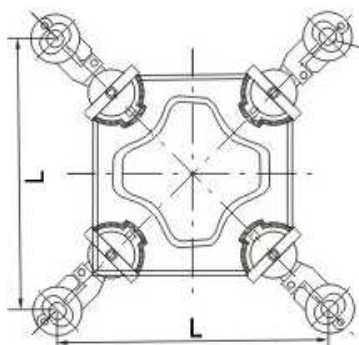
### 6. FJZ6 type Acers-Dampers for Six Bundle Conductors



Catalog No.	Applicable Conductor (mm)	Φ (mm)	Weight (kg)
FJZ6-375/240	LGJ-240/30	750	11.3
FJZ6-375/300	LGJ-300/40	750	11.3

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel.

### 7. FJZJ type Rectangular Frame Spacer Dampers

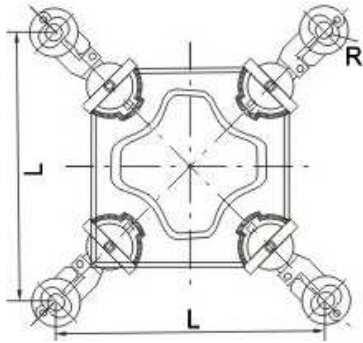


Catalog No.	Applicable Conductor (mm)	L (mm)	Weight (kg)
FJZJ-445/300 (JZJ4-45300)	23.00~24.50	450	8.2
FJZJ-445/400 (JZJ4-45400)	26.00~28.00	450	8.2

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel



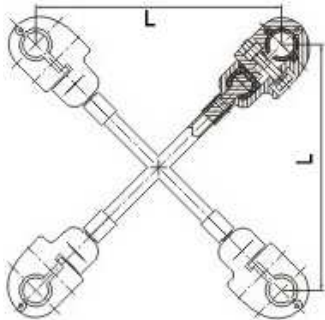
### 8. FJZ type Square Frame type Spacer Dampers



Catalog No.	Applicable Conductor (mm)	(mm)		Weight (kg)
		L	R	
FJZ-445F/300	LGJ-300/20.25. LGJ-300/40.50.	450	9.70	7.8
FJZ-445F/300A	LGJ-300/70	450	10.6	7.8
FJZ-445F/400	LGJ-400/50.65	450	12.0	7.8
FJZ-445F/400A	LGJ-400/20.25 LGJ-400/35	450	11.4	7.8
FJZ-445F/400B	LGJ-400/95	450	12.6	7.8

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel.

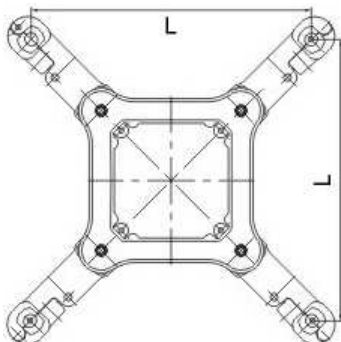
### 9. JTZ4 type Jumper Spacer Damper for Conductors



Catalog No.	Applicable Conductor (mm)	L (mm)	Weight (kg)
JTZ4-45300	23.0~24.5	450	5.8
JTZ4-45400	26.0~28.0	450	5.8
JTZ4-45500	30.0	450	6.8

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel.

### 10. JZF4 type Square Frame Spacer Dampers

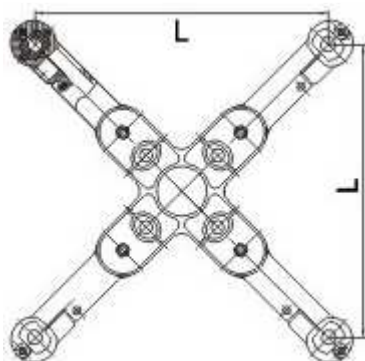


Catalog No.	Applicable Conductor (mm)	L (mm)	Weight (kg)
JZF4-45300	23.0~24.5	450	7.5
JZF4-45300J	24.5~26.0	450	7.5
JZF4-45400	26.0~28.0	450	7.5
JZF4-45400J	28.1~29.5	450	7.5

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel.



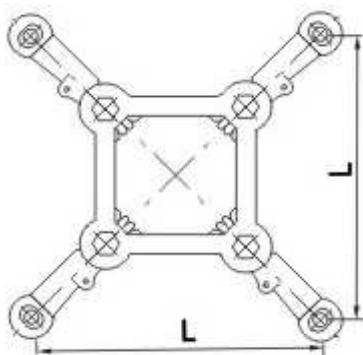
### 11. JZX4 type Square Frame Spacer Dampers



Catalog No.	Applicable Conductor (mm)	L (mm)	Weight (kg)
JZX4-45300	23.0~24.5	450	7.5
JZX4-45300J	24.5~26.0	450	7.5
JZX4-45400	26.0~28.0	450	7.5
JZX4-45400J	28.1~29.5	450	7.5
JZX4-45500G	30.0	450	8.2

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel.

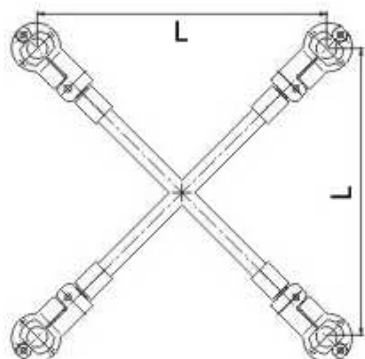
### 12. JZFJ4 type Square Frame Spacer Dampers for Conductors



Catalog No.	Applicable Conductor(mm)	L (mm)	Weight (kg)
JZFJ4-45300	LGJ-300	450	20.3
JZFJ4-45400	LGJ-400	450	20.3

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel.

### 13. JTF4 type Jumper Spacer Dampers for Conductors

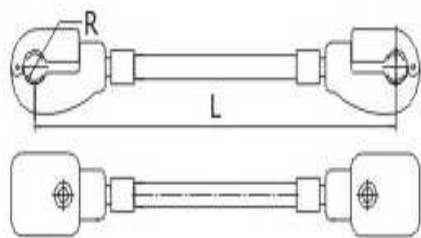


Catalog No.	Applicable Conductor (mm)	L (mm)	Weight (kg)
JTF4-45300	23.0~24.5	450	5.8
JTF4-45400	26.0~28.0	450	5.8

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel.



**14. JJB type Jumper Spacer Damper for Conductors**



Catalog No.	Applicable Conductor (mm)	(mm)		Weight (kg)
		L	Φ	
JJB-45-300	LGJ-300	450	22.5	2.6
JJB-45-400	LGJ-400	450	27.5	2.5
JJB-45-500	LGJ-500	450	28.2	3.1

The clamp is Aluminum Alloy; damper is made of Elastomer (DEMP) and other parts are Hot Dip Galvanized Steel.

**15. ZC, ZD type Counter Weight Pieces**

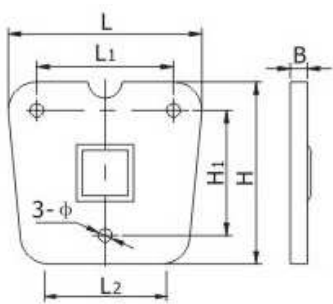


Figure.1

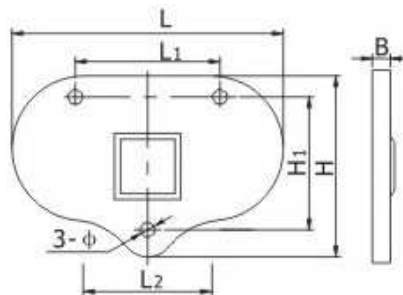


Figure.2

Catalog No.	Fig.	Main Dimensions (mm)							Weight (kg)
		L	L1	L2	H	H1	B	Φ	
ZC-18	1	350	240	200	300	220	30	24	21.8
ZC-20	2	390	240	200	300	225	30	24	21.8

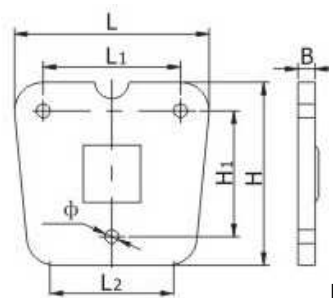


Figure.3

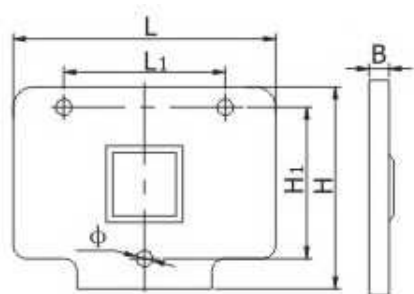


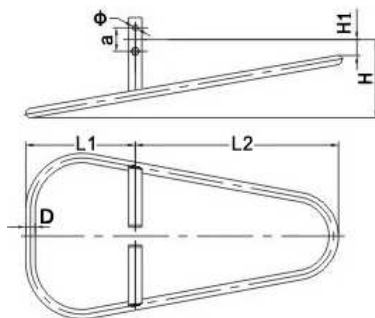
Figure.4

Catalog No.	Fig.	Main Dimensions (mm)							Weight (kg)
		L	L1	L2	H	H1	B	Φ	
ZC-18G	3	350	240	200	300	220	36	24	21.8
ZC-20	3	380	240	200	300	220	35	24	30.0
ZD-20	4	450	(L1) = 240		200	220	30	24	21.8

The counter weight pieces are made of Gray Iron, Painted.



**16. Grading and Shielding Ring for 330kV Line**



Catalog No.	Main Dimensions (mm)							Weight (kg)
	L1	L2	H	H1	a	D	φ	
J-330N	320	702	176	136	80	32	18	5.0
JP-330-N	352	652	392	120	80	32	18	5.2
JP-330-NL	270	650	392	120	80	32	18	2.5

The body is Aluminum Alloy and other parts are Hot Dip Galvanized Steel.

**17. Grading and Shielding Ring for 500kV Line**

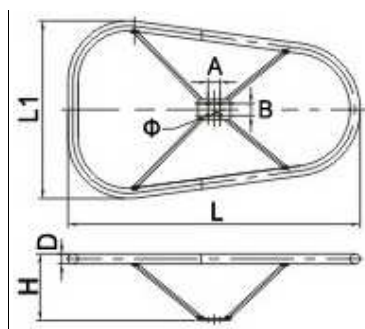


Figure.1

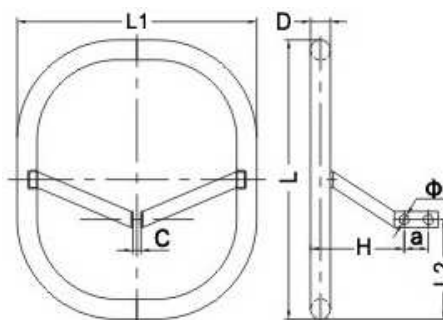


Figure.2

Catalog No.	Fig.	Main Dimensions (mm)							Weight (kg)
		L	L1	H	D	φ	a	b	
JPL-500N	1	1450	900	330	50	18	60	60	9.30
FJP-500ND	1	1670	900	405	50	18	60	60	10.5
FJP-500N/GH	1	1450	920	330	60	18	60	60	11.3
FP-500N/GH	1	1450	900	330	60	18	60	60	10.7

**Below specifications are for Figure.2 Rings**

Catalog No.	Fig.	Main Dimensions (mm)								Weight (kg)
		L	L1	L2	H	D	φ	C	A	
PLJ-500X	2	700	600	250	235	50	18	60	60	3.90
PPL-500X	2	700	600	270	235	50	18	60	60	4.40
PPLJ-500X	2	700	600	270	235	50	18	60	60	4.60

The body is Aluminum Alloy and other parts are Hot Dip Galvanized Steel.



### 18-1. ZH Arcing Horn

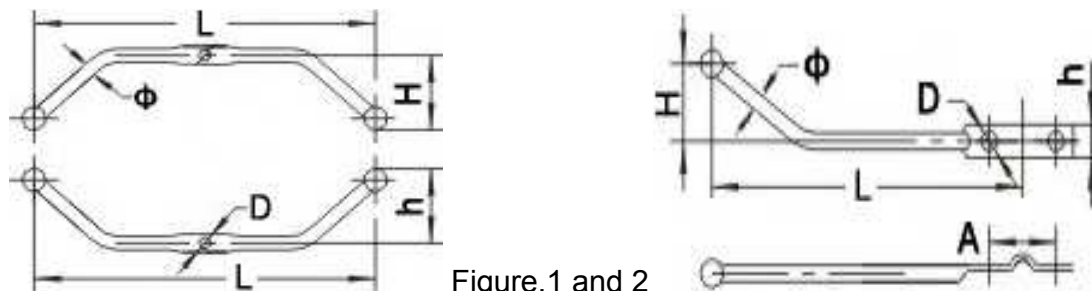


Figure.1 and 2

Catalog No.	Fig.	Main Dimensions (mm)						Rated Voltage (kV)	Weight (kg)
		A	D	H	L	Φ	h		
ZH-01	1	D = 14.5		197	712	16	114	138	1.20
ZH-02	1	D = 14.5		197	762	16	114	161~230	1.26
ZH-11	2	60	14.5	197	356	16	114	138	1.15
ZH-12	2	60	14.5	197	385	16	114	161	1.20

Arcing horns are made of Hot Dip Galvanized Steel.

### 18-2. ZH Arcing Horn

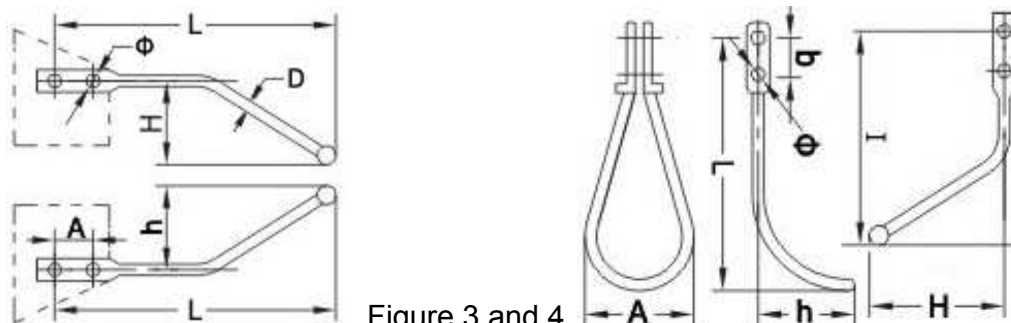


Figure.3 and 4

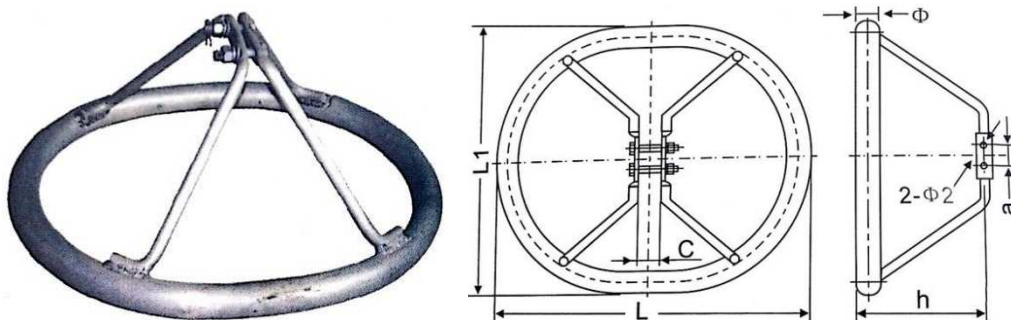
Catalog No.	Fig.	Main Dimensions (mm)						Rated Voltage (kV)	Weight (kg)
		d	A	H	L	Φ	h		
ZH-21	3	14.5	45	270	340	16	203	110~138	0.86
ZH-22	3	14.5	45	270	372	16	203	145~161	1.03
Catalog No.	Fig.	Main Dimensions (mm)						Rated Voltage (kV)	Weight (kg)
		H	L	b	h	l	Φ		
ZH-31	4	203	434	45	270	372	14.5	203	2.00
ZH-32	4	114	445	45	197	381	14.5	203	2.10

Arcing horns are made of Hot Dip Galvanized Steel.





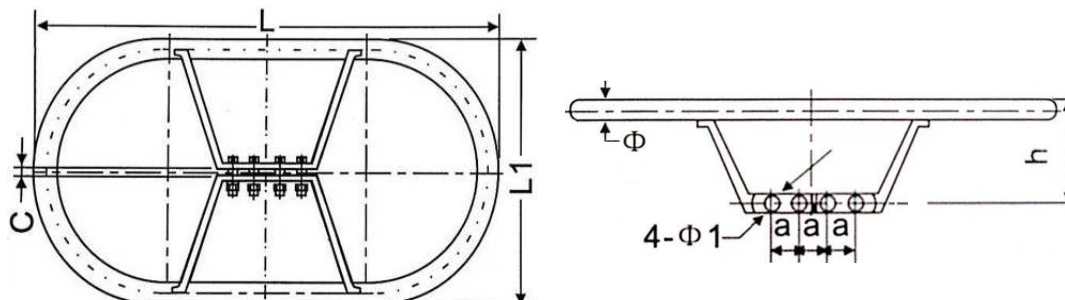
### 19. Grading and Shielding Ring for 500kV Line



Catalog No.	Main Dimensions (mm)							Weight (kg)
	L	L1	h	Φ	Φ2	C	a	
JL-500XD	700	600	290	50	18	20	80	3.00
FJP-500XD1L	700	600	270	5	14	20	45	2.90
FJP-500XDA	800	700	320	50	18	20	80	4.30
FJ-500XD/GH	700	600	290	60	14	20	80	6.80

Shielding Rings are made of Aluminum Tube.

### 20. Grading and Shielding Ring for 500kV Line

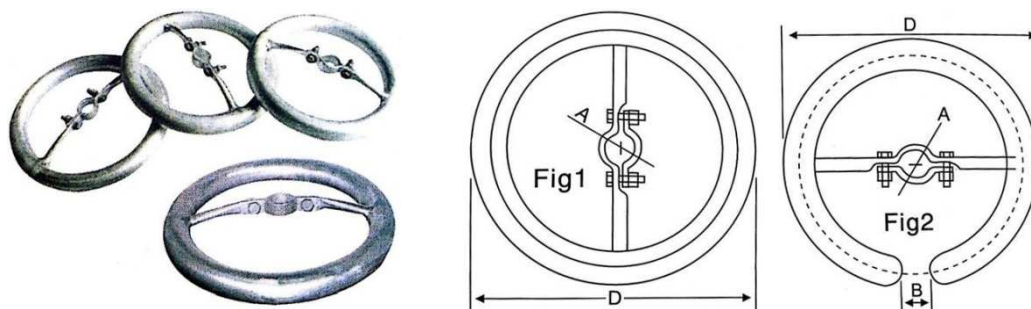


Catalog No.	Main Dimensions (mm)							Weight (kg)
	L	L1	h	Φ	Φ1	C	a	
JL-500XS	1050	600	230	50	18	24	60	4.30
LJ2-500XS	1050	600	230	50	18	22	60	4.30
FJ-500XS/GH	1050	600	230	60	14	22	60	10.0
FJ-500XS/GHE	1150	600	270	60	18	24	60	4.70
FJP-500XSL	1200	600	230	50	18	20	60	5.30
FJ-500XSL1	1200	600	230	50	18	22	60	5.30
FJ-500XSL2	1280	680	260	50	18	28	60	5.50
FJ-500XSL3	1280	680	285	50	18	44	60	5.60
FJ2-500XS/G	1150	680	230	60	18	24	60	4,70

Shielding Rings are made of Aluminum Tube.



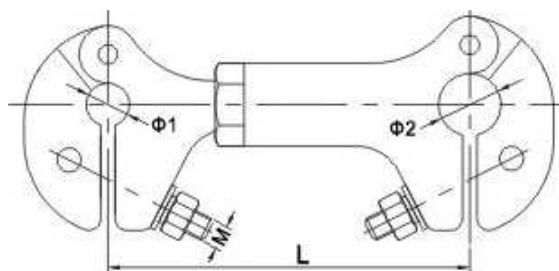
### 21. FJH type Grading and Shielding Ring for 500kV Line



Catalog No.	Figure	Main Dimensions (mm)		Weight (kg)
		D	A	
FJH-500	1	400	F44	1.50
FJH-330	1	330	F44	1.00
FJH-220	1	270	Φ44 (Φ29)	0.75
FJH-110	1	250	Φ44 (Φ29)	0.60
FJH-35	1	200	Φ44 (Φ29)	0.60
FJH-500KL	2	400	Φ44 (Φ29)	1.40
FJH-330K	2	300	Φ44 (Φ29)	0.95
FJH-220K	2	260	Φ44 (Φ29)	0.70
FJH-110K	2	250	Φ44 (Φ29)	0.55

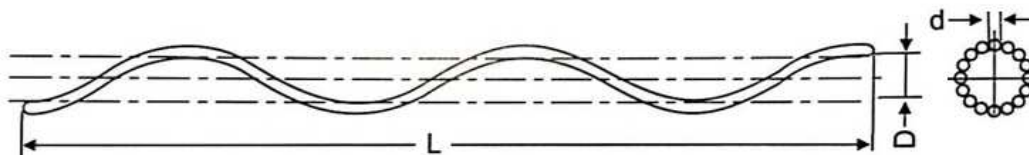
Shielding Ring body is made of Aluminum, and other parts are Hot Dip Galvanized Steel.

### 22. TJ-2 type Spacer Dampers for 500kV Lines



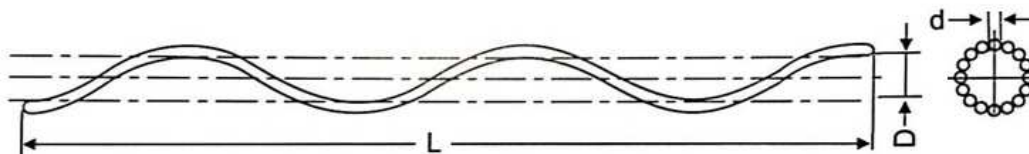
Catalog No.	Applicable Conductor (mm)	Main Dimensions (mm)				Weight (kg)
		Φ1	Φ2	M	L	
TJ2-12240	LGJ-240/30	18	22	10	120~145	0.9
TJ2-12300	LGJ-300/25~40	18	26	10	120~145	0.9
TJ2-12400	LGJ-400/20~25	22	28	10	120~145	0.9
TJ2-12500	LGJ-500/45	23	31	10	120~140	1.2
TJ2-12630	LGJ-630/45	26	34	10	120~135	1.1
TJ2-12720	LGJ-720/50	26	38	10	120~145	1.1

The body is made of Aluminum Alloy and other parts are Hot Dip Galvanized Steel.

**23. FYB type Preformed Armour Rods for Conductor Repairing**

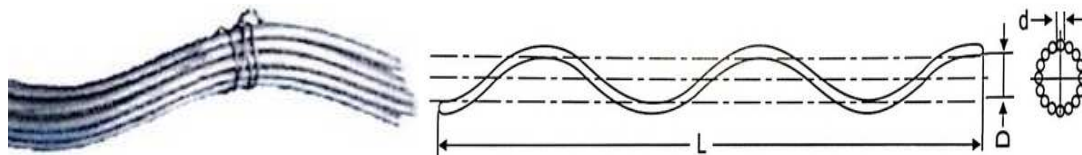
Catalog No.	Applicable Conductor (mm <sup>2</sup> )	Main Dimensions (mm)			No. of Strand	Weight (kg)
		d	D	L		
FYB-95/15	LGJ-95/15	3.60	11.4	420	13	0.14
FYB-95/20	LGJ-95/20	3.60	11.4	420	13	0.16
FYB-95/55	LGJ-95/55	3.60	13.0	420	13	0.17
FYB-120/7	LGJ-120/7	3.60	12.0	450	14	0.18
FYB-120/20	LGJ-120/20	3.60	12.5	450	14	0.18
FYB-120/25	LGJ-120/25	3.60	13.0	450	14	0.19
FYB-150/8	LGJ-150/8	3.60	13.3	480	16	0.20
FYB-150/20	LGJ-150/20	3.60	14.7	480	16	0.21
FYB-150/25	LGJ-150/25	3.60	14.2	480	16	0.21
FYB-150/35	LGJ-150/35	3.60	14.5	480	16	0.21

The materials are made of Aluminum Alloy.

**24. YJB type Preformed Armour Rods for Conductor Repairing**

Catalog No.	Applicable Conductor (mm <sup>2</sup> )	Main Dimensions (mm)			No. of Strand	Weight (kg)
		d	D	L		
YJB-35	LGJ-35	3.60	7.10	270	9	0.08
YJB-50	LGJ-50	3.60	8.20	300	10	0.09
YJB-70	LGJ-70	3.60	9.70	340	11	0.12
YJB-95	LGJ-95	4.60	11.6	420	11	0.23
YJB-120	LGJ-120	4.60	12.9	450	12	0.27
YJB-150	LGJ-150	4.60	14.4	480	13	0.30
YJB-185	LGJ-185	4.60	16.2	580	14	0.39
YJB-240	LGJ-240	6.30	18.4	640	12	0.66
YJB-300	LGJ-300	6.30	20.5	700	13	0.80
YJB-400	LGJ-400	6.30	23.8	820	14	1.05
YJB-300Q	LGJ-300Q	6.30	20.0	700	13	0.80
YJB-400Q	LGJ-400Q	6.30	23.0	820	14	1.05
YJB-500Q	LGJ-500Q	7.80	25.7	870	13	1.74

The materials are made of Aluminum Alloy.

**25. FYH type Preformed Armour Rods for Conductor Repairing**

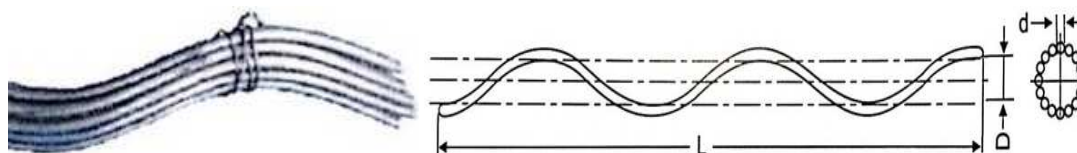
Catalog No.	Applicable Conductor (mm <sup>2</sup> )	Main Dimensions (mm)			No. of Strand	Weight (kg)
		d	D	L		
FYH-70/10	LGJ-70/10	3.60	9.70	1300	11	0.33
FYH-95/15	LGJ-95/15	3.60	11.4	1400	13	0.53
FYH-95/20	LGJ-95/20	3.60	11.4	1400	13	0.54
FYH-95/55	LGJ-95/55	3.60	13.3	1500	16	0.62
FYH-120/7	LGJ-120/7	3.60	12.0	1400	14	0.55
FYH-120/20	LGJ-120/20	3.60	12.5	1400	14	0.57
FYH-120/25	LGJ-120/25	3.60	13.0	1400	14	0.58
FYH-120/70	LGJ-120/70	3.60	14.9	1800	14	0.75
FYH-150/8	LGJ-150/8	3.60	13.3	1500	16	0.62
FYH-150/20	LGJ-150/20	3.60	14.7	1500	16	0.65
FYH-150/25	LGJ-150/25	3.60	14.2	1500	16	0.64
FYH-150/35	LGJ-150/35	3.60	14.5	1500	16	0.66
FYH-185/10	LGJ-185/10	4.60	14.9	1800	14	1.24
FYH-185/25	LGJ-185/25	4.60	15.7	1800	14	1.25
FYH-185/30	LGJ-185/30	4.60	15.7	1800	14	1.26
FYH-185/45	LGJ-185/45	4.60	16.3	1800	14	1.26
FYH-210/10	LGJ-210/10	4.60	15.9	1800	14	1.27
FYH-210/25	LGJ-210/25	4.60	16.6	1800	14	1.28
FYH-210/35	LGJ-210/35	4.60	16.9	1800	14	1.28
FYH-210/50	LGJ-210/50	4.60	17.3	1800	14	1.30
FYH-240/30	LGJ-240/30	4.60	17.9	1900	16	1.44
FYH-240/40	LGJ-240/40	4.60	17.9	1900	16	1.44
FYH-240/55	LGJ-240/55	4.60	18.6	1900	13	1.50
FYH-300/15	LGJ-300/15	6.30	19.1	2000	13	2.30
FYH-300/20	LGJ-300/20	6.30	19.4	2000	13	2.30
FYH-300/25	LGJ-300/25	6.30	19.7	2000	13	2.33
FYH-300/40	LGJ-300/40	6.30	19.9	2000	13	2.34
FYH-300/50	LGJ-300/50	6.30	20.1	2000	13	2.34



FYH-300/70	LGJ-300/70	6.30	20.9	2000	13	2.54
FYH-400/20	LGJ-400/20	6.30	22.3	2200	14	2.80
FYH-400/25	LGJ-400/25	6.30	22.1	2200	14	2.80
FYH-400/35	LGJ-400/35	6.30	22.3	2200	14	2.80
FYH-400/50	LGJ-400/50	6.30	23.0	2200	14	2.80
FYH-400/65	LGJ-400/65	6.30	23.2	2200	14	2.83
FYH-400/95	LGJ-400/95	6.30	24.8	2200	14	2.85
FYH-500/35	LGJ-500/35	6.30	24.9	2500	16	3.48
FYH-500/45	LGJ-500/45	6.30	24.9	2500	16	3.48
FYH-500/65	LGJ-500/65	6.30	25.7	2500	16	3.50
FYH-630/45	LGJ-630/45	7.80	27.9	2500	15	5.32
FYH-630/55	LGJ-630/55	7.80	28.5	2500	15	5.40
FYH-630/80	LGJ-630/80	7.80	28.9	2500	15	5.40
FYH-720/50	LGJ-720/50	7.80	31.0	3000	15	6.20
FYH-800/55	LGJ-800/55	7.80	31.8	2500	17	6.02
FYH-800/70	LGJ-800/70	7.80	32.1	2500	17	6.10
FYH-800/100	LGJ-800/100	7.80	32.3	2500	17	6.20

The materials are made of Aluminum Alloy.

## 26. FYH-BG type Preformed Armour Rods for Conductor Repairing



Catalog No.	Applicable Conductor (mm <sup>2</sup> )	Main Dimensions (mm)			No. of Strand	Weight (kg)
		d	D	L		
FYH-50BG	LBGJ-50-23AC	3.60	7.70	1000	9	0.95
FYH-80BG	JLBIA-80	3.60	9.60	1400	12	1.61
FYH-100BG	LBGJ-100-20AC	3.60	11.0	1400	12	1.92
FYH-120BG	JLBIA-120	3.60	12.0	1400	14	1.72
FYH-150BG	LBGJ-180-40AC	3.60	13.2	1500	15	1.98
FYH-185BG	LBGJ-185-20AC	3.60	14.5	1500	16	2.10

The materials are made of Aluminum Alloy.