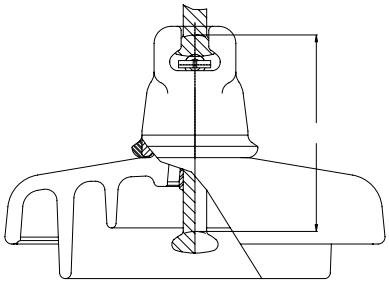
Sediver toughened glass suspension insulators

IEC

Ball & Socket coupling
Direct Current type



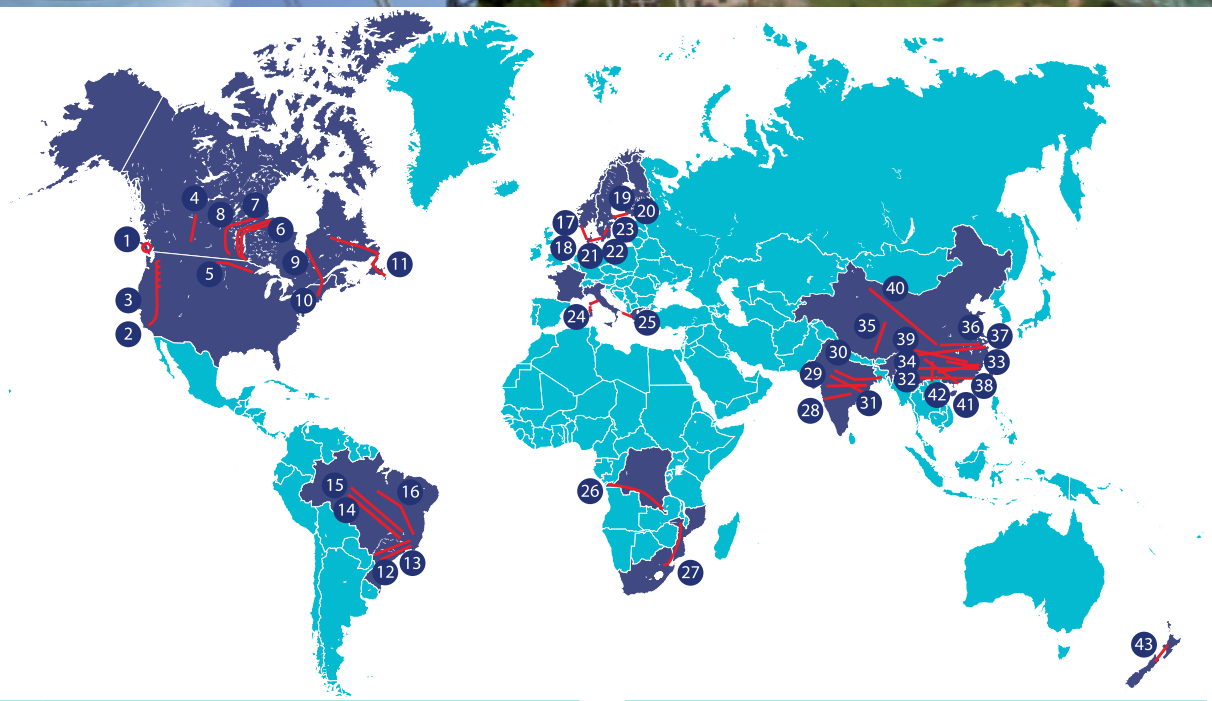
CATALOG No		DC Fog type Profile				
		F160P/ C170DR	F210P/ C170DR	F300PU/ C195DR	F420P/ C205DR	F550P/ C240DR
IEC class [1]		U160BL	U210BP	U300BP		
Metal fitting size [2]		20	20	24	28	32
MECHANICAL CHARACTERISTICS						
Combined M&E strength	kN	160	210	300	420	550
Impact strength	N-m	45	45	45	45	45
Tension proof	kN	80	105	150	200	275
DIMENSIONS						
Diameter (D)	mm	330	330	360	380	360
Spacing (S)	mm	170	170	195	205	240
Leakage distance	mm	550	550	645	670	635
ELECTRICAL CHARACTERISTICS[3]						
DC withstand voltage						
- Dry one minute ±	kV	150	150	150	150	170
- Wet one minute ±	kV	65	65	65	65	75
Dry lightning impulse withstand	kV	140	140	140	140	140
DC SF6 puncture withstand voltage	kV	225	225	225	225	255
PACKING AND SHIPPING DATA						
Approx. net weight per unit	kg	9.7	10.2	15.3	18.7	18
No of insulators per crate		3	3	5	4	2
Volume per crate	m³	0.062	0.062	0.135	0.132	0.063
Gross weight per crate	kg	31.7	34.6	78	82	43

Custom products, not shown here are also available.

(1) IEC 60305
(2) IEC 60120
(3) IEC 61325

Sediver on HVDC T/L in the World

- 6.5 million toughened glass DC insulators are installed all around the world
- 50 years of experience up to 800 kV DC



1	**±260 kV DC,** Canada, Vancouver Islands 42km, 1967
2-3	**±500 kV DC,** USA, Pacific Inertie 1360 km, 1969/2014
4	**±500 kV DC,** Canada, Eastern Alberta, 500 km, 2013
5	**±500 kV DC,** USA, Dickinson - Coal Creek 687km, 1978
6-7-8	**±450&500 kV DC,** Canada, Bipole I,II & III 2x870 km & 1364 km 1972 & 2014-15
9	**±450 kV DC,** Canada, Quebec- New England, 1100 km, 1988
10	**±500 kV DC,** USA, New England 85 km,1984
11	**±350 kV DC,** Canada, Labrador-Newfoundland – Muskrat Falls, 2014
12-13	**±600 kV DC,** Brazil, Itaipu I & II, 2 x 800 km, 1984/87
14-15	**±600 kV DC,** Brazil, Rio Madeira I & II, 2 x 2500 km, 2012/13
16	**±800 kV DC,** Bresil, Belo Monte I, 2092km, 2015/16
17-18	**±250&350 kV DC,** Denmark-Norway, Skagerrak 217 km, I &II ;III 1975/1993
19-20	**±500 kV DC,** Finland-Sweden, Fenno Skan I & II 136 km, 1988/2009
21-22	**±300 kV DC,** Denmark-Sweden,Konti-Skan I ;II & III, 1965/1988
23	**±300 kV DC,** Sweden, South-West Link – the Southern part, 2012
24	**±200 kV DC,** Italy-France, Corsica-Sardinia-Italy 264 km, 1967/1992
25	**±400 kV DC,** Italy-Greece Interconnection, 110 km, 1999
26	**±500 kV DC,** Congo DR, Inga-Shaba 1700 km, 2013-14
27	**±533 kV DC,** Mozambique, Cahora Bassa 1420 km, 1977/2011/2013
28	**±500 kV DC,** India, Chandrapur Padghe, 752 km, 1997
29	**±500 kV DC,** India, Rihand Dadri 814 km, 1987
30	**±800 kV DC,** India, Biswanath Agra 1825 km, 2010/11/12
31	**±500 kV kV DC,** India, Ballia Bhiwadi 780 km, 2008/2009
32	**±500 kV DC,** China, Tianshengqiao - Guangdong 1050 km, 2001/2004
33	**±500 kV DC,** China, Guizhou - Guangdong I & II 2007 km, 2003
34	**±500 kV DC,** China, Yunnan - Guangdong 1418 km, 2008
35	**±500 kV DC,** China, Deyang - Baoji 534 km, 2009
36	**±500 kV DC,** China, Ge Hu 1929 km, 2009
37	**±800 kV DC,** China, Jinping - Sunan 2089 km, 2011
38	**±800 kV DC,** China, Nuozhadu - Guangdong 1413 km, 2012
39	**±500 kV DC,** China, Xiloudu - Guangdong 1251 km, 2012
40	**±800 kV DC,** China, Hami - Zhengzhou 2208 km, 2013
41	**±500 kV DC,** China, Jinzhong -Guangxi - Zhengzhou 1139 km, 2015
42	**±500 kV DC,** China, Guangyinyan 700 km, 2015
43	**±350 kV DC,** New Zealand, North South Island 535 km, 1990

Sediver contribution within international standardisation committees

Since the very beginning of international technical cooperation, Sediver has always been an active member in fields of research and standardisation in international committees and working groups dealing with all aspects of high voltage insulation.

Committee	International Electrotechnical Commission	International Council on Large Electric Systems	Institute of Electrical and Electronics Engineers
Working Groups	**Main Committees & Working Group in which Seves is active**		
	IEC TC 36: Insulators	WG D1.27: Material Properties for New and Nonceramic Insulation	T&D Committee WG Insulator contamination
	WG 11: Revision of IEC 60815	WG B2.21: Arc protection and Diagnosis for Composite String Insulators	WG Insulator strength
	IEC SC 36B: Insulators for overhead lines	WG B2.41: AC to DC Conversion	WG Application of non ceramic insulators
	EC SC 36C: Insulators for substations	WG C4.303: Pollution and environmental influence on the electrical performance of power systems	ESMOL
	IEC TC 37: Surge arresters		

HVDC international publications and Sediver research activities on HVDC insulators

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L. PARGAMIN **"Contaminated Insulator Performance on HVDC Lines and Substations"** IEEE T&D PANEL SESSION 1989

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