Shunt Reactors

Shunt reactors are mainly used in places where overcompensation is the problem. Typically they are used to compensate capacitive power of long power transmission and distribution lines, on solar farms, wind parks and any other site where is too high capacitive load. This capacitive characteristics causes system to become overcompensated which usually results in penalties from utility because of high capacitive demand. Furthermore this capacitive characteristic causes the line voltage to increase and may damage sensitive equipment connected to it. This problem can be seen in industrial zones, large commercial buildings, data centers and other large objects.

Key features:

- One or three phase, highly permeable iron core
- Thermal fuse protection against overheating in all phases
- Vacuum impregnated varnish to ensure silent and moisture-immune operation
- Low losses, high efficiency

Designing the PFC system with de-compensation ability

Shunt reactor can be permanently connected to system to compensate static capacitive load, such as long cable. This method is simplest but definitely not optimal and efficient because of the heat and losses. Better solution is to include shunt reactor to PFC system, where it will be used only when it is necessary (during nights when inductive load of facility reduces etc.). When implemented in PFC system it's very important to use controller which allows shunt reactors switching and de-compensation such as NOVAR controller. Similarly to capacitors, shunt reactors are sized in kvar which indicates its reactive power and works in exact opposite to capacitors. That means effect of 50kvar capacitors can be negated with 50kvar shunt reactor. Usually PFC cabinet uses multiple capacitor banks with one larger shunt reactor and power factor controller can combine simultaneously capacitive and inductive steps to reach maximal number of possible inductive and capacitive powers. This is not only possible way of usage, various other systems where multiple shunt reactors or exclusively shunt reactors are used in PFC system in combination with advanced NOVAR power factor controllers.

ERS3 - 400/5

Type
ERS3 = 3-phase shunt reactor
ERS1 = 1-phase shunt reactor

Nominal Voltage

Nominal Reactive Power

3-phase, 400V, Shunt Reactor					
Type	Power [kvar]	Inductance [mH]	I_{nom} [A]	Max Losses [W]	Weight [kg]
ERS3 – 400/0,25	0,25	2043	0,36	17	2,4
ERS3 – 400/0,5	0,5	1000	0,7	33	3
ERS3 – 400/1	1	505	1,45	40	5
ERS3 – 400/1,5	1,5	336	2,2	75	7,5
ERS3 – 400/2	2	252	2,9	90	9
ERS3 – 400/2,5	2,5	203	3,6	98	10
ERS3 – 400/3	3	170	4,3	107	12
ERS3 – 400/3,5	3,5	146	6,5	130	17
ERS3 – 400/4	4	128	7,5	150	21
ERS3 – 400/4,5	4,5	113	8,33	170	22
ERS3 – 400/5	5	100	7,2	195	20
ERS3 – 400/6,25	6,25	81	9	207	25
ERS3 – 400/8	8	64	11,5	220	30
ERS3 – 400/10	10	51	14,5	280	34
ERS3 – 400/12,5	12,5	41	18,1	308	45
ERS3 – 400/15	15	34	21,6	320	60
ERS3 – 400/20	20	25,5	29	385	90
ERS3 – 400/25	25	20,4	36,3	420	115
ERS3 – 400/30	30	17	43,5	447	125
ERS3 – 400/40	40	12,75	58	542	140
ERS3 – 400/50	50	10,2	72,5	698	160
ERS3 – 400/80	80	6,3	116	1158	260
ERS3 – 400/100	100	5	145	1050	273

1-phase, 230V, Shunt Reactor					
Type	Power [kvar]	Inductance [mH]	I_{nom} [A]	Max Losses [W]	Weight [kg]
ERS1 – 230/0,125	0,125	1523	0,55	10	2,4
ERS1 – 230/0,25	0,25	672	1,10	17	3,0
ERS1 – 230/0,5	0,50	338	2,20	33	5,0
ERS1 – 230/0,8	0,80	220	3,35	38	7,5
ERS1 – 230/1	1,00	168	4,35	40	9,0
ERS1 – 230/1,25	1,25	135	5,50	70	10,0
ERS1 – 230/1,5	1,50	103	6,60	75	12,0
ERS1 – 230/2	2,00	77	8,80	90	17,0
ERS1 – 230/2,5	2,50	67	11,00	98	21,0
ERS1 – 230/3	3,00	56	13,10	107	22,0
ERS1 - 230/5	5,00	34	21,80	195	20,0
ERS1 – 230/7,5	7,50	22	32,70	215	25,0
ERS1 – 230/10	10,00	17	43,50	280	30,0

Other types available on request.