

# **DATA SHEETS - HP Series**

## **145kV/40kA - 2000A**

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<b>1. Voltage Rating</b>	
1.1 Normal System Voltage	138kV
1.2 Rated Maximum Voltage	145kV
1.3 Voltage Range Factor	1.0
<b>2. Interrupting Current Rating</b>	
2.1 Symmetrical Short Circuit Capability	40kA
2.2 Three second short-time current carrying capability	40kA
2.3 Close and Latching Capability	108kA
2.4 Permissible Tripping Delay	1 sec.
2.5 Capacitance Switching	
2.5.1 Line Charging Current	1000A
2.5.2 Isolated Shunt Capacitor Bank Current	1000A
2.5.3 Back to Back Shunt Capacitor Bank Current	1000A
2.6 Out of Phase Switching	10kA
2.7 Percent interrupting capability after 0-0 sec-CO-15 sec-CO duty cycle	100%
<b>3. Continuous Current Rating</b>	2000A
<b>4. Operating Time (60 Hz basis)</b>	
4.1 Interrupting Time	3 cycles
4.2 Opening Time	1.8 cycles
4.3 Closing time	7 cycles
4.4 Minimum allowable reclosing time	20 cycles
4.5 Reclosing range	20-120 cycles
<b>5. Temperature Range</b>	
5.1 Maximum Ambient	40°C
5.2 Minimum Ambient	
5.2.1 Without Tank Heaters	-30°C
5.2.2 With Tank Heaters	-40°C
5.2.3 Special Heaters	-50°C
5.3 Contact temperature rise (max.)	65°C

<b>6.</b>	<b>Insulation Level</b>	
6.1	One minute dry withstand (60 Hz)	310kV
6.2	Ten second wet withstand	275kV
6.3	Full wave lightning impulse (BIL)	650kV
6.4	2 μsec chopped wave withstand	838kV
6.4	3 μsec chopped wave withstand	748kV
<b>7.</b>	<b>Dielectric Strength at Atmospheric Pressure</b>	1.2 times
<b>8.</b>	<b>Pre-insertion Resistor</b>	(Available in HPRI Series)
<b>9.</b>	<b>Voltage Grading Capacitors</b>	None
<b>10.</b>	<b>TRV Control Capacitors</b>	No
<b>11.</b>	<b>Breaks per Phase</b>	1
<b>12.</b>	<b>Operating Mechanism</b>	
12.1	Type	Pneumatic
12.2	Individual or common mechanism	Common
<b>13.</b>	<b>Air System</b>	
13.1	Operating range of air pressure	185 - 235 psig
13.2	Low air pressure alarm	199 psig
13.3	Low air pressure lockout	185 psig
13.4	Overpressure relief valve open at	284 psig
13.5	Compressor	
	13.5.1 Manufacturer	EMGLO
	13.5.2 Horsepower	1.5hp
13.6	Minimum Number of close-open operations stored in air receiver	4
13.7	Maximum number of close-open operations stored in air receiver	5
13.8	Pump up from atmospheric to operating pressure	45 min.
13.9	Pump up from lockout to operating pressure	15 min.

<b>13.10</b>	Compressor motor	
<b>13.10.1</b>	Manufacturer	Dayton
<b>13.10.2</b>	Voltage	230/115AC single phase
<b>13.10.3</b>	Speed	1725 rpm
<b>13.10.4</b>	Class of insulation	B
<b>13.11</b>	Air storage volume	17.9 cu. ft.
<b>14.</b>	<b>SF<sub>6</sub> System</b>	
<b>14.1</b>	Normal operating pressure at 20°C	75 psig
<b>14.2</b>	Minimum operating pressure with full rating	64 psig
<b>14.3</b>	Temperature compensated gas density alarm	69 psig
<b>14.4</b>	Temperature compensated gas density lockout	64 psig
<b>14.5</b>	Overpressure relief valve	105 psig
<b>14.6</b>	Weight of SF <sub>6</sub> gas	115 lbs.
<b>15.</b>	<b>Trip Coil</b>	
<b>15.1</b>	Voltage	125V DC
<b>15.2</b>	Allowable Voltage Range	70-140V DC
<b>15.3</b>	Current	5A
<b>15.4</b>	Number of trip coils	2
<b>16.</b>	<b>Close Coil</b>	
<b>16.1</b>	Voltage	125V DC
<b>16.2</b>	Voltage Range	90-140V DC
<b>16.3</b>	Current	1.6A
<b>16.4</b>	Number of close coils	1
<b>17.</b>	<b>Bushings</b>	
<b>17.1</b>	Manufacturer	Locke
<b>17.2</b>	Insulation Medium	SF <sub>6</sub>
<b>17.3</b>	Creepage distance	94"/2387mm
Optional Extra Creep		115"/2921mm
Optional Extra Extra Creep		142.9"/3630mm
<b>17.4</b>	Additional Height required to remove bushing	3 feet
<b>17.5</b>	Insulation Class (BIL)	650kV
<b>17.6</b>	Permissible safe cantilever strength of installed bushing	300 lbs.
<b>17.7</b>	Strike distance	52.3"

<b>18.</b>	<b>Control Cabinet Heaters</b>	
18.1	KW of heaters	.64kW
18.2	Location	1-mechanism 2-compressor motor
18.3	Voltage	1-control cabinet 120/240V AC
<b>19.</b>	<b>Total KW required per breaker</b>	1.8kW
<b>20.</b>	<b>Breaker Dimensions</b>	
20.1	Height of breaker to top of terminal	159"
20.2	Total length	200"
20.3	Width	73"
20.4	Weight	10,500 lbs.
20.5	Impact loading for foundation design	None
20.6	Phase spacing	67"
<b>21.</b>	<b>CT Standard Ratings (Non Applicable)</b>	
21.1	Max. number available per bushing	3
21.2	Number proposed per bushing	per spec.
21.3	Relaying or metering accuracy	per spec.
21.4	Ratio	per spec.
21.5	Thermal Rating Factor	1.5
<b>22.</b>	<b>Maintenance Requirements</b>	
22.1	Arcing contact material	Copper-Tungsten
22.2	Number of short circuits before internal maintenance check	10
22.3	Number of rated continuous current interruptions before internal maintenance check recommended	2000
<b>23.</b>	<b>Applicable Standards</b>	
23.1	ANSI	C37
23.2	NEMA	SG4
23.3	IEC	56