

# Laying Conditions for Power Cables

As laying depth, the mathematical distance to the cable axis – for triangular bunched laying the distance of the bundle axis to the earth surface with 70 cm is choised. With increased laying depth the load ratings will be mathematically reduced. Hereby the same temperature and the same thermal earth resistances are to be presumed.

Normal operation conditions and indications for deviating operation conditions.

## Normal operation conditions

Laid in <b>Earth</b>		Laid in <b>Air</b>		Indications
1 Multicore cable		1 Multicore cable		Conversions factors see the following tables
1 Single core cable in direct current-system		1 Single core cable in direct current system		as of collective laying conditions see the following tables
3 Single core cables in 3-phase system, side by side, with a space of 7 cm		3 Single core cables in 3-phase system, side by side, with a space of a cable $\varnothing$		
3 Single core cables in 3-phase system, in bundle form <sup>1)</sup>		3 Single core cables in 3-phase system in bundle form <sup>1)</sup>		
Bedding in sand or earth shove and if necessary covering with bricks, cement plates or with flat to light curved thin covering of plastic		<ul style="list-style-type: none"> <li>– Laid in open air, i.e. unhindered heat radiation will be ensured at: Distance of cable from wall, floor or ceiling <math>\geq 2</math> cm</li> <li>– For cables laying side by side: Space at least two times of the cable <math>\varnothing</math></li> <li>– For cables laying one above the other: Vertical space of the cable atleast two times of the cable <math>\varnothing</math> cable length at least 30 cm</li> <li>– Consideration of thermal loss in cable, the increased air temperature of sufficient big and ventilated rooms</li> <li>– Protection against direct heatradiation of sunlight etc.</li> <li>– Air temperature 30°C</li> </ul>	<ul style="list-style-type: none"> <li>• Conversion factors for laying in earth: – covering hood with air cavat <math>\gamma = 0,9</math> laid in conduit = 0,85</li> <li>• Conversion factors for laying in air: – alternating ambient temperatures – as of collecting laying conditions – for laying in conduits – see tables and indications according to DIN VDE 0298</li> </ul>	
<b>Ambient conditions</b>				
<ul style="list-style-type: none"> <li>– Ground temperature at installation depth: 20°C</li> <li>– Soil-thermal resistivity of moist area: 1,0 K · m/W</li> <li>– Soil-thermal resistivity of dry area: 2,5 K · m/W</li> </ul>				
<b>Connecting and earthing</b> of metal sheaths or screens on both ends				
				Adequate big or ventilated rooms, due to that the power loss of the cable not be noticeable increased
				<b>Connecting and earthing</b> of metal sheaths or screens on both sides

<sup>1)</sup> in "bunched" or triangle touching arrangement