

**Tough Rubber-Sheathed Reeling Cables**



SK1\_12-001.tif



SK1\_12-003.tif

SK1\_12-002.tif

### Selection and dimensioning criteria

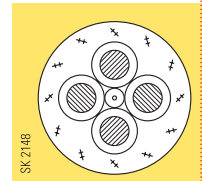
Refer to Section 4 for further details



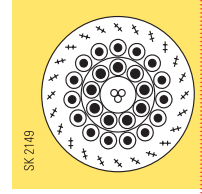
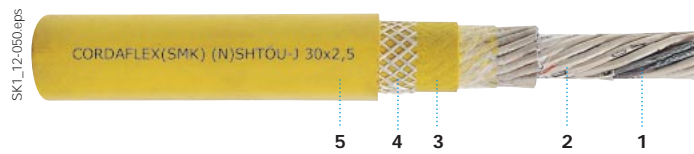
	Type	<b>CORDAFLEX(SMK)</b>	Page	4/2
	Type designation	(N)SHTOU -J/-O	Page	4/3
	Approvals/standards	DIN VDE 0250, Part 814 File E, MSHA P, IEC	Pages and	4/4 4/5
	Application	Flexible reeling cable for high and very high mechanical stresses on mobile equipment, mobile cable tender systems, festoon systems and for vertical reeling operation. Also for applications to which DIN VDE 0168 and 0118 apply: Open-cast and underground mining.	Pages and	4/6 4/7
<b>Electrical parameters</b>	Rated voltage	$U_0 / U = 0.6/1 \text{ kV}$	Pages to	4/8
	Maximum permissible operating voltage in AC systems	$U_0 / U = 0.7/1.2 \text{ kV}$		4/13
	Maximum permissible operating voltage in DC systems	$U_0 / U = 0.9/1.8 \text{ kV}$		
	AC test voltage	4.0 kV over 5 min		
	Current-carrying capacity	According to DIN VDE 0298, Part 4		
	Bus compatibility	Cable design with twisted and shielded core pairs can be used for all standard bus systems	Pages and	4/12 4/13
	EMC	Assured as a result of special cable design		
<b>Thermal parameters</b>	Ambient temperature		Pages and	4/14
	<ul style="list-style-type: none"> <li>Fully flexible operation</li> <li>Fixed installation</li> </ul>	- 35 °C to + 60 °C - 50 °C to + 80 °C		4/15
	Maximum permissible operating temperature of the conductor	90 °C		
	Short-circuit temperature of the conductor	250 °C		
<b>Mechanical parameters</b>	Tensile load	Up to 30 N/mm <sup>2</sup>	Page	4/16
	Torsional stresses	± 50 °/m	Page	4/16
	Minimum bending radii	According to DIN VDE 0298, Part 3	Page	4/17
	Minimum distance with S-type directional changes	20 x D		
	Travel speed		Page	4/18
	<ul style="list-style-type: none"> <li>Gantry (reeling operation)</li> </ul>	No restriction. Consult the manufacturer for speeds above 180 m/min		
	<ul style="list-style-type: none"> <li>Trolley (festoon and tender system)</li> <li>Hoist (vertical reeling)</li> </ul>	Up to 240 m/min Up to 160 m/min		
Additional tests	Reversed bending test, roller bending test, torsional stress test	Page	4/19	
<b>Chemical parameters</b>	Resistance to oil	Given to DIN VDE 0473, Part 811-2-1, Para. 10	Page	4/21
	Weather resistance	Unrestricted use outdoors and indoors, resistant to ozone, UV and moisture		
	Water compatibility	Given and verified in long-term tests		

**Tough Rubber-Sheathed Reeling Cables**

- 1 Conductor
- 2 Insulation
- 3 First sheath
- 4 Anti-torsion braid
- 5 Third sheath



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**Design features**

Refer to Section 4 for further details →

Type	<b>CORDAFLEX(SMK)</b>	Page	4/2
Conductor (refer also to DIN VDE 0295)	Electrolytic copper tinned, very finely stranded class "FS"	Pages and	4/22 4/23
Insulation (refer also to DIN VDE 0207, Part 20)	PROTOLON MS Newly developed special compound based on high-quality EPR (at least 3GI3); improved mechanical and electrical characteristics	Pages to	4/24 4/26
Shield for individually shielded cores and twisted and shielded pairs	Braid screen made of tinned copper wires. Transfer impedance optimized at 30 MHz. Surface covered: at least 60 % for shielded cores at least 80 % for twisted and shielded pairs	Page	4/27
Core identification	Optimal identification as a result of light insulation with numbers printed in black for power and control cables, protective-earth conductor green-yellow		
Core arrangement	Laid-up in a maximum of 3 layers. Length of lay 5 x D (core diameter)	Pages and	4/28 4/29
Support element	Central Aramide support element to increase the loading capability for special designs; the kN value designates the breaking load of the support element	Page	4/30
Sheath system	<ul style="list-style-type: none"> <li>• PROTOFIRM Special: First sheath Newly developed special compound based on PCP, colour: yellow</li> <li>• Anti-torsion braid Reinforced braid made of polyester threads, in a vulcanized bond between the sheaths. Resulting in a high strength of the sheath system.</li> <li>• PROTOFIRM: Third sheath A sheath system with a unique combination of flexibility and robustness has been achieved through the use of a new structure. Abrasion and tear-proof special rubber compound based on PCP, colour: yellow. PROTOFIRM sandwich construction (2 sheaths) for wall thickness 3 mm and more. Refer also to PROTOLON(SMK)</li> </ul>	Pages to	4/24 4/26
		Page	4/30
		Pages to	4/24 4/26
Marking	CORDAFLEX(SMK) (N)SHTÖU -J/-O (number of cores) x (cross-section)	Page	4/31

## Selection and ordering data

Number of cores and nominal cross-section mm <sup>2</sup>	Order No.	Main conductor diameter (guidance value) mm	Overall diameter of cable		Approx. net weight for 1000 m kg	Maximum permissible tensile force N
			Min. value (guidance value) mm	Max. value (guidance value) mm		
<b>(N)SHTÖU-J power cables, four-core design</b>						
4 x 4 *	<b>5DH3 132</b>	3.0	16.0	18.0	455	480
4 x 6 *	<b>5DH3 133</b>	3.6	17.4	19.4	575	720
4 x 10 *	<b>5DH3 134</b>	4.6	21.6	23.6	905	1200
4 x 16 *	<b>5DH3 135</b>	5.6	23.7	26.7	1240	1920
4 x 25 *	<b>5DH3 136</b>	7.3	28.5	31.5	1850	3000
<b>(N)SHTÖU-J power cables, five-core design</b>						
5 x 4 *	<b>5DH3 151</b>	3.0	17.4	19.4	430	600
5 x 6 *	<b>5DH3 152</b>	3.6	19.0	21.0	690	900
5 x 10 *	<b>5DH3 153</b>	4.6	23.4	25.4	1080	1500
5 x 16 *	<b>5DH3 154</b>	5.6	26.1	29.1	1500	2400
<b>(N)SHTÖU-J power cables, three-core design with protective-earth conductor split into 3</b>						
3 x 35 + 3 x 16/3 *	<b>5DH3 121</b>	8.4/3.5	28.5	31.5	2160	3150
3 x 50 + 3 x 25/3 *	<b>5DH3 122</b>	10.3/4.2	34.4	37.4	2850	4500
3 x 70 + 3 x 35/3 *	<b>5DH3 123</b>	12.0/5.0	39.7	42.7	3920	6300
3 x 95 + 3 x 50/3 *	<b>5DH3 124</b>	14.0/6.0	44.3	47.3	5020	8550
3 x 120 + 3 x 70/3 *	<b>5DH3 125</b>	15.8/7.2	51.0	55.0	6630	10800
3 x 150 + 3 x 70/3 *	<b>5DH3 126</b>	17.5/7.2	53.9	57.9	7690	13500
3 x 185 + 3 x 95/3	<b>5DH3 127</b>	19.4/8.1	58.9	62.9	9310	16650
3 x 240 + 3 x 120/3	<b>5DH3 128</b>	22.5/9.3	67.4	71.4	12200	21600
<b>(N)SHTÖU-J control cables</b>						
4 x 1.5	<b>5DH3 130</b>	1.6	12.2	13.8	240	180
5 x 1.5 *	<b>5DH3 140</b>	1.6	13.0	14.6	280	225
7 x 1.5 *	<b>5DH3 142</b>	1.6	15.2	17.2	385	315
12 x 1.5 *	<b>5DH3 161</b>	1.6	21.4	23.4	710	540
18 x 1.5 *	<b>5DH3 162</b>	1.6	21.3	23.3	760	810
24 x 1.5 *	<b>5DH3 163</b>	1.6	23.8	26.8	990	1080
30 x 1.5	<b>5DH3 164</b>	1.6	26.6	29.6	1220	1350
36 x 1.5	<b>5DH3 165</b>	1.6	26.5	29.5	1260	1620
44 x 1.5	<b>5DH3 166</b>	1.6	29.5	32.5	1530	1980
56 x 1.5	<b>5DH3 167</b>	1.6	34.9	37.9	2050	2520
3 x 2.5 *	<b>5DH3 111</b>	2.0	12.7	14.3	280	
4 x 2.5 *	<b>5DH3 131</b>	2.0	13.2	14.8	305	300
5 x 2.5 *	<b>5DH3 141</b>	2.0	14.2	15.8	355	375
7 x 2.5 *	<b>5DH3 143</b>	2.0	16.6	18.6	510	525
12 x 2.5 *	<b>5DH3 171</b>	2.0	23.4	25.4	920	900
18 x 2.5 *	<b>5DH3 172</b>	2.0	23.3	25.3	1005	1350
24 x 2.5 *	<b>5DH3 173</b>	2.0	26.2	29.2	1320	1800
30 x 2.5 *	<b>5DH3 174</b>	2.0	29.4	32.4	1660	2250
36 x 2.5 *	<b>5DH3 175</b>	2.0	29.3	32.3	1720	2700
44 x 2.5 *	<b>5DH3 176</b>	2.0	34.1	37.1	2230	3300
56 x 2.5	<b>5DH3 177</b>	2.0	40.1	43.1	2940	4200

**Tough Rubber-Sheathed Reeling Cables**

**Selection and ordering data**

Number of cores and nominal cross-section mm <sup>2</sup>	Order No.	Main conductor diameter (guidance value) mm	Overall diameter of cable		Approx. net weight for 1000 m kg	Maximum permissible tensile force N
			Min. value (guidance value) mm	Max. value (guidance value) mm		

**(N)SHTÖU-J control cables for vertical reeling operation, with 20 kN support element**

46 x 1 (20 kN) *	<b>5DH3 191</b>	1.3	26.6	29.6	1190	3200
24 x 2.5 (20 kN) *	<b>5DH3 195</b>	2.0	26.2	29.2	1290	3600
30 x 2.5 (20 kN) *	<b>5DH3 196</b>	2.0	29.4	32.4	1610	4100
44 x 2.5 (20 kN) *	<b>5DH3 198</b>	2.0	34.1	37.1	2160	5100
56 x 2.5 (20 kN)	<b>5DH3 190</b>	2.0	40.1	43.1	2840	6000

**(N)SHTÖU-O bus cables**

3 x (2 x 1)C *	<b>5DH3 186</b>	1.3	22.0	24.0	755	180
6 x (2 x 0.5)C	<b>5DH3 187</b>	0.9	23.1	25.1	885	360
6 x (2 x 1)C *	<b>5DH3 188</b>	1.3	28.9	31.9	1330	360
12 x 1(C) *	<b>5DH3 183</b>	1.3	22.9	25.9	865	360

**(N)SHTÖU-J combined control cables**

12 x 2.5 + 12 x 1(C)	<b>5DH3 184</b>	2.0/1.3	26.2	29.2	1230	900
19 x 2.5 + 5 x 1(C) *	<b>5DH3 180</b>	2.0/1.3	26.2	29.2	1290	1575
25 x 2.5 + 5 x 1(C) *	<b>5DH3 181</b>	2.0/1.3	29.4	32.4	1620	2025

