DEMAG
Cranes & Components

DSK multi-button pendant switches

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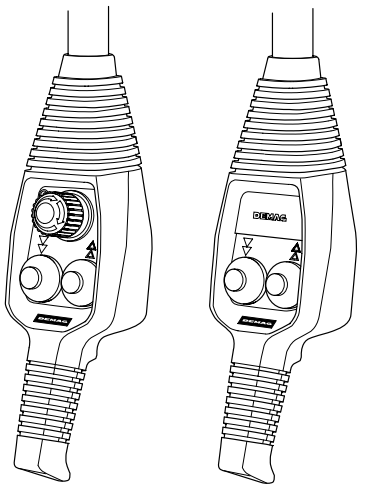
DSK multi-button pendant switches are hand-operated controls for machinery and, more particularly, for controlling hoisting equipment from the floor. By fitting various switching elements, it is possible to use the switches for the direct-on-line-control of drive motors with an output of up to 5,5 kW. Motors with a higher output are controlled via auxiliary circuits with contactors.

Design features



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- The sloping housing of the pendant permits operators to work in a natural comfortable position.
- Fatigue-free operation with ergonomically styled housing.
- Movements in opposite directions are prevented by mechanically interlocked switching elements.
- CBDN switching element (emergency-stop) without jump function, with automatic disconnection of the normally closed contacts.
- For direct-on-line control, 2-pole switching by simultaneous operation of snap-action contacts.
- Identical design for direct-on-line and contactor control.
- Control paths and forces to the relevant standards (e.g. to DIN 33 401), hold down force < 8 N.
- Housing of high-quality thermoplastic material, high shock and impact resistance.
- Protective insulation in accordance with the relevant international standards (e.g. DIN VDE 0100 Part 410, section 4.13.2).
- Type of enclosure IP 55 to DIN VDE 0470/EN60529 in “suspended” operating position, IP 65 on request.
- Flame-resistant housing, climate-proof and corrosion-resistant.
- Resistant to fuels, salt water, grease, oil and alkaline solutions.
- Permissible ambient temperatures: rubber and thermoplastic parts -25° C to +70° C.

Design and mounting information

Design

The casings of the pendant switches are made of high-quality thermoplastic material. The upper part of the casing is black (RAL 9005), the lower part yellow (RAL 1007).

The pendant switch casings are ergonomically styled for easy operation, even with gloves, for instance in plants with a hot atmosphere. The buttons have a large surface and require low operating and holding forces. The required holding force when switching is below 8 N, thus conforming with relevant standards (e.g. DIN 33 401).

The sloping casing design of the DSK control pendant enables operators to work in a natural position, thereby reducing fatigue. A raised edge at the lower end of the casing helps prevent the operator’s hand from sliding off.

Movements in opposite directions are prevented by mechanically interlocked switching elements.

The identification plates beneath the buttons can be fitted without removing the switching elements. The arrow symbols on the identification plates correspond to DIN 15 012, draft 2.88. Colours: yellow symbol on black background.

Standards

DSK multi-button pendant switches comply with most relevant international standards and codes of practice, e.g. VDE 0660, IEC publications 337-1 and 158-1 as well as CSA (Canada), UL (USA) and SEV (Switzerland) regulations.

Material properties

The material of the pendant switch casings is flame and impact resistant and self-extinguishing (according to relevant standards and codes of practice). It is resistant to corrosion and unaffected by extreme climatic conditions. Furthermore, it is resistant to fuels, oil, grease, salt water and alkaline solutions. The materials used are suitable for arduous mechanical and electrical duty.

The maximum permissible ambient temperature for rubber and thermoplastic parts is -25° C to +70° C.

Type of enclosure

When assembled, the control pendants have IP 55 type of enclosure acc. to DIN VDE 0470/EN 60529, IEC 529. IP 65 enclosure is available on request, i.e. they are then dust-tight and protected against hose-water from all directions.

Protective insulation

High electrical safety due to protective insulation in accordance with relevant standards and codes of practice, e.g. DIN VDE 0100 Part 410, section 4.13.2.

Cable entry and strain relief

DSK pendant switches are fitted with a high-tensile flexible hose to relieve the strain on the control cable, as standard. At the same time, the flexible hose protects the control cable fitted inside. The maximum possible diameter of the cable used with this hose is 18,5 mm.

For additional strain relief by rope or chain or for control pendants supplied as solo units (without cable), strain relief may be effected as indicated in data sheet 206 489 44.

Explanation of type coding

Switching elements

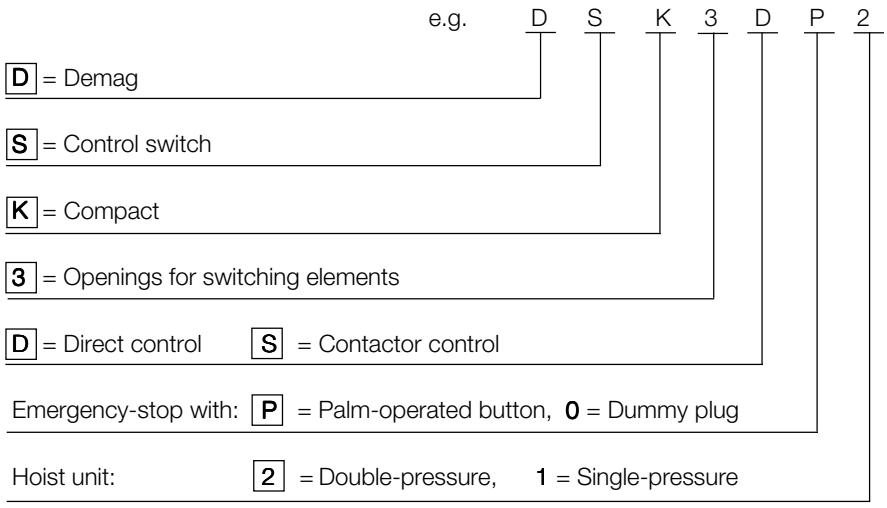
Single-pressure	C	B	D	1
Double-pressure	C	B	D	2
Emergency-stop	C	B	D	N

Block switching element

D = Direct control **S** = Contactor control

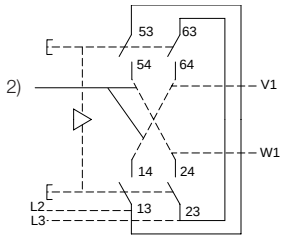
1 = Single-pressure, 2 = Double-pressure, N = Emergency-stop

Explanation of type coding



Standard DSK control pendant switches

CBD 1 switching element



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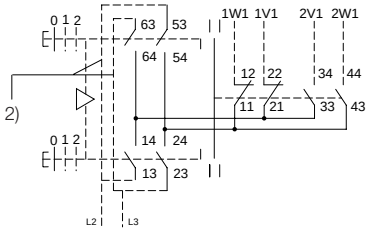
CBD 2 switching element



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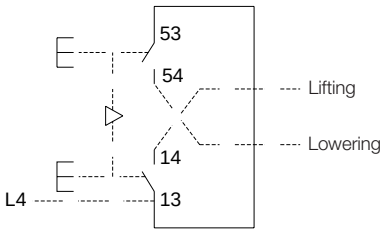
CBS 1 switching element



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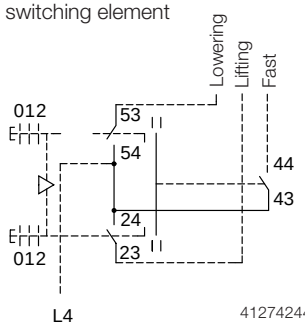
CBS 2 switching element



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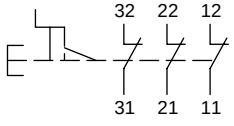
CB DN



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Standard design, complete for direct and contactor control, without control cable for all drives.

With control cable for direct control of DK (PK) hoist units.

Identification plate	Type	Cable 1) m	Cable 1) Leads x mm²	Part no.	Switching elements fitted Qty	Switching elements fitted Type	Weight kg
⬇ ⇧	DSK 3 DO 1	-	-	874 681 44			0,470
		0,8	4 x 1,5	874 698 44			0,930
		1,8		874 699 44			1,370
		2,8		874 700 44	1	CB D 1	1,800
		3,8		874 701 44			2,240
		4,8		874 702 44			2,680
		6,8		874 703 44			3,550
⏫ ⇩	DSK 3 DO 2	-	-	874 682 44			0,500
		0,8	6 x 1,5	874 704 44			1,000
		1,8		874 705 44			1,500
		2,8		874 706 44	1	CB D 2	1,900
		3,8		874 707 44			2,370
		4,8		874 708 44			2,820
		6,8		874 709 44			3,750
Emergency-stop ⬇ ⇧	DSK 3 DP 1	-	-	874 683 44			0,540
		0,8	6 x 1,5	772 358 44	1	CB DN	1,040
		1,8		874 710 44			1,500
		2,8		874 711 44	1	CB D 1	1,950
		3,8		772 359 44			2,400
		4,8		874 712 44			2,860
		6,8		772 360 44			3,770
Emergency-stop ⏫ ⇩	DSK 3 DP 2	-	-	874 684 44			0,570
		0,8	8 x 1,5	772 361 44	1	CB DN	1,070
		1,8		874 713 44			1,680
		2,8		874 714 44	1	CB D 2	2,210
		3,8		772 362 44			2,810
		4,8		772 363 44			3,390
		6,8		772 364 44			4,580

With control cable for contactor control of DK (PK) hoist units.

Identification plate	Type	Cable 1) m	Cable 1) Leads x mm²	Part no.	Switching elements fitted Qty	Switching elements fitted Type	Weight kg
⬇ ⇧	DSK 3 SO 1	-	-	772 193 44			0,450
		0,8	4 x 1,5	772 915 44			0,900
		1,8		772 916 44			1,350
		2,8		772 917 44	1	CB S 1	1,780
		3,8		772 918 44			2,220
		4,8		772 919 44			2,660
		6,8		772 920 44			3,530
⏫ ⇩	DSK 3 SO 2	-	-	772 194 44			0,480
		0,8	4 x 1,5	772 921 44			0,980
		1,8		772 922 44			1,480
		2,8		772 923 44	1	CB S 2	1,880
		3,8		772 924 44			2,350
		4,8		772 925 44			2,800
		6,8		772 926 44			3,730
Emergency-stop ⬇ ⇧	DSK 3 SP 1	-	-	772 191 44			0,520
		0,8	4 x 1,5	772 927 44	1	CB DN	1,020
		2,8		772 928 44	1	CB S 1	1,930
		3,8		772 929 44			2,480
		4,8		772 930 44			2,840
		6,8		772 931 44			3,750
Emergency-stop ⏫ ⇩	DSK 3 SP 2	-	-	772 192 44			0,550
		0,8	6 x 1,5	772 932 44	1	CB DN	1,050
		3,8		772 933 44	1	CB S 2	2,700
		4,8		772 934 44			3,200
		6,8		772 935 44			4,300

1) An additional strain relief rope must be fitted for control cables longer than 8 m.

2) Only fit jumpers for DK and PK electric chain hoists and travel drives.

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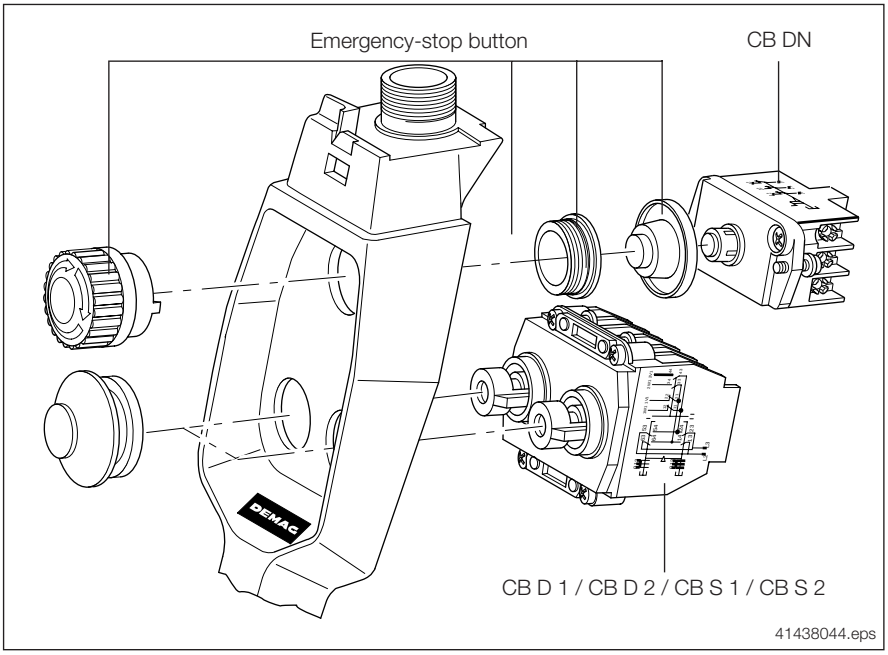
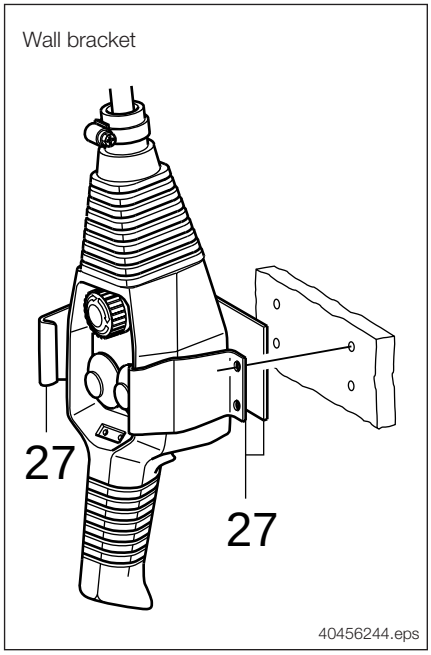
Switching elements for main and control current

Type	Description	Part no.	Weight kg
CB D 1	Switching element, single pressure 2 x 2 NO	874 667 44	0,12
CB D 2	Switching element, double pressure 1st step 2 x 2 NO, 2nd step 2 DT	874 668 44	0,15
CB S 1	Switching element, single pressure 2 x 1 NO	772 185 44	0,10
CB S 2	Switching element double pressure 1st step 2 x 1 NO 1st step 1 two-step NO	772 188 44	0,10
CB DN	Switching element, emergency-stop 1) 3 NC	874 658 44	0,06
	Emergency-stop button with identification plate 874 666 44, cpl. (Can only be used in connection with switching element CB DN)	874 718 44	0,018

1) Can only be fitted in connection with emergency-stop button 874 718 44

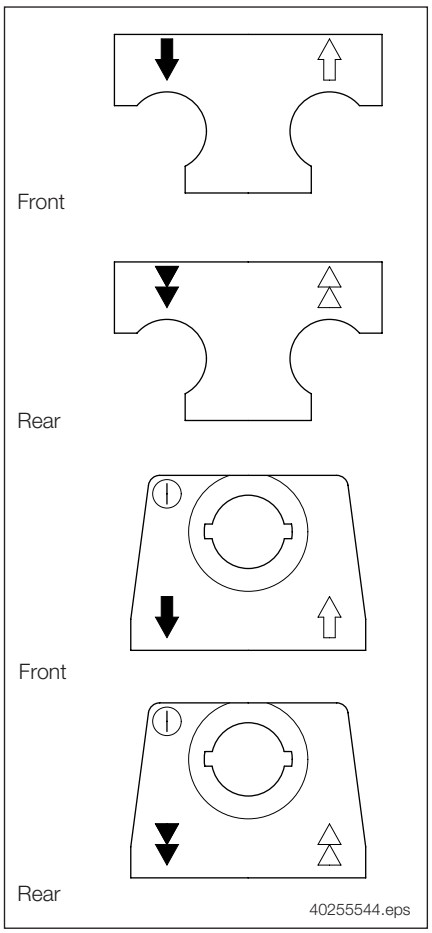




Accessories

	Special flexible hose for DSK, protection and strain relief for control cable inside, inner diameter 20 mm	872 242 44	0,27/m
	Threaded bush Pg 16 (for securing special flexible hose, e.g. PK hoist, inner diameter 16 mm)	872 240 44	0,100
	Slide bush (for securing special flexible hose to DK, inner diameter 19 mm)	836 051 44	0,018/m
DSK-W	Complete DSK wall bracket for DSK units. The DSK can be permanently fixed to the wall bracket. Permanent fixture is only permissible for stationary controls.	874 768 44	0,155
	Control cable YMHYK-O 4 x 1,5	504 935 44	0,166/m
	Control cable YMHYK-O 6 x 1,5	504 936 44	0,187/m
	Control cable YMHYK-O 8 x 1,5	504 938 44	0,256/m
	Control cable YMHYK-O 4 x 2,5	504 941 44	0,230/m
	Control cable YMHYK-O 6 x 2,5	504 942 44	0,266/m
	Control cable YMHYK-O 8 x 2,5	504 944 44	0,376/m
	Cable sleeve Ø 12 - 18	872 367 44	0,08
	Strain relief bracket	874 725 44	0,09
	3 NC fail-safe (emergency-stop button with switching element)	772 876 44	0,09

Component parts for DSK control pendant switch



Identification plates

Type	Description	Part no.	Weight kg
	Hoist unit, single or double-pressure	874 665 44	0,005
	Emergency-stop/hoist unit, single or double-pressure	874 666 44	0,005

Identification plates with part no. 874 66. 44 are printed on both sides.

Front and rear side:
Black background with yellow symbol.

Colour:
Silken yellow according to RAL 1007, silken black according to RAL 9005.

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Technical data

Switching elements

Switching element		Type	CB D 1	CB D 2	CB DN	CB S 1	CB S 2
Contacts			2 x 2 NO	1st step	3 NC	2 x 1 NO	1st step
Steps			1	2 x 2 NO	1	1	2 x 1 NC
				2nd step			2nd step
				2 DT			1 two-step NO
Nominal insulation voltage U_i							
VDE 0110, gr. C		V~	500				
Canada C 22 2 no. 14		V a - c	150				
Life in terms of switching cycles							
Mechanical		S	2×10^6				
Electrical		S	see diagram 1				
Max. number of switching cycles		S/h	see diagram 2				
Terminal screws			M 3,5				
Connecting lead cross section		mm^2	max. 2 x 2,5				
Max. nominal current of short-circuit fuse, delayed action		A	20	20		16	16
Nominal operating current Ie							
40 - 60 Hz for	230 V	A	20	20	for	10	10
	400 V	A	12	12	switching capacity	6	6
	500 V	A	9	9	up to 5,5 kW	4,5	4,5
Category 1) to DIN VDE 0660			AC 3, AC 4	AC 3, AC 4		AC 15	
Continuous current Ith 2		A	25				

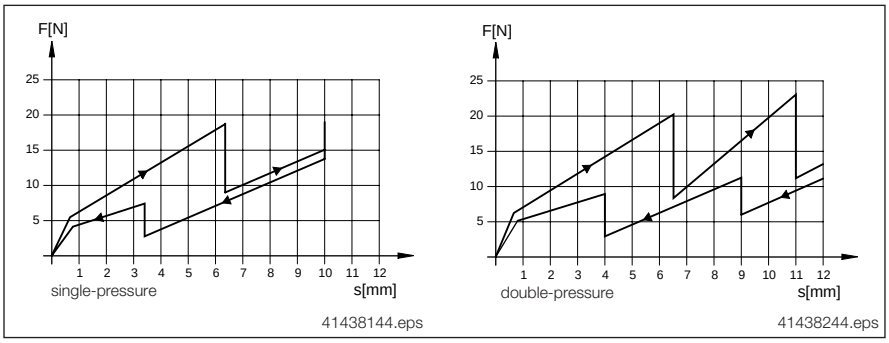
Casing			
Type of enclosure to	DIN VDE 0470/EN 60529		IP 55
	IEC 529		IP 65 on request
Electrical safety			Protection insulation acc. to DIN VDE 0100 part 410, section 413.2
Ambient temperature min/max			
Rubber and thermoplastic parts		°C	- 25° to + 70 °C
Dia. of opening for switching element		mm	22,5

1) AC 3: Normal switching conditions: up to 6 x nominal motor current
Breaking: 1 x nominal motor current

AC 4: Extreme switching conditions (operational short-impulse switching); making: 6 x nominal motor current.
Breaking: 6 x nominal motor current (short-impulse switching should be avoided because of strong contact erosion)

AC 15: Controlling electromagnetic loads (> 72 VA)

Diagram of operating force (F) as a function of the operating path(s) for single- and double-pressure switching elements

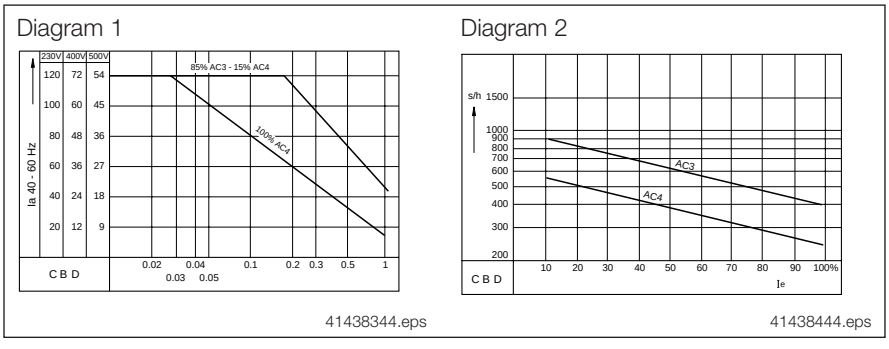


Switch life as a function of breaking current

I_a breaking current
S switching cycles
I_e nominal operating current

Approximate values for the max. number of switching cycles per hour (s/h) for SE switching elements as a function of the nominal operating current

1 switching cycle =
1 switching on and switching off operation



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