

DATA SHEET

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TECHNICAL DATA AND CALCULATION FUNDAMENTALS FOR DISC BRAKE – BSFI D300 “E” (DOUBLE PISTON)

Caliper type	Clamping force ¹⁾ [N]		Braking force ²⁾ [N]	Loss of force per 1mm [%]	Operating pressure ³⁾ [MPa]	Balancing pressure ¹⁾ [MPa]		Piston travel ⁴⁾ [mm]	Max. air gap ⁵⁾ [mm]	Pad surface pressure ⁶⁾ [N/mm ²]
	Min	Max				Min	Max			
BSFI D300-012	12,000	13,200	6,400	6.0	2.3	0.87	0.95	1.0	3	0.36
BSFI D300-016	16,000	17,600	12,800	7.0	2.5	1.16	1.27	1.0	3	0.47
BSFI D300-020	20,000	22,000	16,000	4.5	3.5	1.45	1.59	1.0	3	0.59
BSFI D300-030	30,000	33,000	24,000	5.0	4.0	2.20	2.38	1.0	3	0.89
BSFI D300-034	34,000	38,000	27,200	4.0	4.2	2.46	2.74	1.0	3	1.02
BSFI D300-036	36,000	39,000	28,800	5.0	4.2	2.61	2.82	1.0	3	1.05
BSFI D300-040	40,000	44,400	32,000	3.0	4.5	2.90	3.21	1.0	3	1.19
BSFI D300-044	44,000	49,000	35,200	3.0	5.0	3.19	3.54	1.0	3	1.32
BSFI D300-050	50,000	55,600	40,000	12.0	5.5	3.62	4.02	1.0	3	1.50
BSFI D300-060	60,000	66,200	48,000	10.0	7.0	4.35	4.78	1.0	3	1.78
BSFI D300-064	64,000	70,400	51,200	9.0	7.0	4.63	5.09	1.0	3	1.89
BSFI D300-070	70,000	76,600	56,000	8.0	7.5	5.07	5.54	1.0	3	2.06
BSFI D300-080	80,000	87,200	64,000	7.0	8.5	5.79	6.30	1.0	3	2.35
BSFI D300-090	90,000	97,600	72,000	6.0	9.5	6.52	7.06	1.0	3	2.63
BSFI D300-100	100,000	108,000	80,000	11.0	10.5	7.24	7.81	1.0	3	2.91
BSFI D300-110	110,000	118,600	88,000	10.0	12.0	7.96	8.57	1.0	3	3.19
BSFI D300-120	120,000	128,800	96,000	9.0	13.0	8.69	9.31	1.0	3	3.47

- 1) All figures are based on 1mm air gap (Dual spring: Each side – Mono Spring: Total) and 2 spring packs.
2) Braking force (F_B) is based on the minimum clamping force (F_C), nominal coefficient of friction of $\mu = 0.4$ and 2 brake surfaces.
3) The operating pressure is the minimum needed for operating the brake
4) The piston travel at which the pressure limits is measured – the nominal pressure limits is identical to balancing pressure values.
5) Maximum recommended air gap depending on wear.
6) Pad pressure for organic pads (at max. clamping force).

BRAKING TORQUE

The braking torque M_B calculated from following formula:

a is number of brakes acting on the disc

F_B is braking force according to table above [N] or calculated from formula

D_o is brake disc outer diameter [m]

The actual braking torque may vary depending on adjustment of brake and coefficient of friction.

$$M_B = a \cdot F_B \cdot \frac{(D_o - 0.120)}{2} [Nm]$$

$$F_B = F_C \cdot 2 \cdot \mu [N]$$

CALCULATION FUNDAMENTALS

Disc thickness:

Weight of calliper (incl. pads/bolts – excl. bracket):

Overall dimensions HxDxW (approx):

Pad width:

Pad thickness for new pad (organic):

Pad area (organic):

Max. wear of pad (organic):

Nominal coefficient of friction:

Total piston area – each calliper half:

Total piston area – each calliper:

Volume for each calliper at 1 mm stroke:

Volume for each calliper at 3 mm stroke:

Actuating time (guide value for calculation):

Pressure connection size (P-port):

Drain connection size (L-port):

Recommended pipe size:

Max operating pressure:

Operating temperature range:

Dual Spring (DS)

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Approx. 250kg

483x348x380 (+C) mm

113.6 mm

25 mm

37,160 mm² (*)

8 mm (*) (=17.0 mm thick)

$\mu = 0.4$

$2 \times 69.1 \text{ cm}^2 = 138.2 \text{ cm}^2$

$4 \times 69.1 \text{ cm}^2 = 276.4 \text{ cm}^2$

27.6 cm^3

82.8 cm^3

0.3 sec.

G1/4, ISO 228

G1/8, ISO 228

10/8 mm

23.0 MPa

from -20 to +70°C

(For temperatures outside this range contact Svendborg Brakes)

Mono Spring (MS)

26-77mm

Approx. 340kg

639x358x350 (+C) mm

113.6 mm

25 mm

37,160 mm² (*)

5 mm (*) (=20.0 mm thick)

$\mu = 0.4$

$2 \times 69.1 \text{ cm}^2 = 138.2 \text{ cm}^2$

$2 \times 69.1 \text{ cm}^2 = 138.2 \text{ cm}^2$

13.8 cm^3

41.4 cm^3

0.3 sec.

G1/4, ISO 228

G1/8, ISO 228

10/8 mm

23.0 MPa

from -20 to +70°C

(C = Brake disc thickness)

(*) On each brake pad – thickness stated is minimum thickness before replacement