

Disc Brake: BSFI 3000 DUALspring

Name: DEB-3000-001-DS-MAR

Date: 23.01.2012

Revision: B



TECHNICAL DATA AND CALCULATION FUNDAMENTALS

CALIPER TYPE	CLAMPING FORCE ¹⁾ [N]		BRAKING FORCE ²⁾ [N]	LOSS OF FORCE PER 1MM [%]	OPERATING PRESSURE ³⁾ MPa	BALANCING PRESSURE ¹⁾ MIN MPa	PAD SURFACE PRESSURE ⁴⁾ [N/mm ²]
	MIN	MAX					
BSFI 3020	20,000	23,000	16,000	5.0	4.0	2.28	0.39 - 0.64
BSFI 3025	24,800	24,800	19,840	4.0	4.5	2.82	0.46 - 0.76
BSFI 3030	30,000	33,500	24,000	5.0	5.0	3.42	0.56 - 0.93
BSFI 3040	40,000	44,000	32,000	4.0	6.5	4.55	0.74 - 1.22
BSFI 3046	46,000	50,000	36,800	4.0	7.5	5.23	0.84 - 1.39
BSFI 3050	50,000	55,000	40,000	6.0	8.0	5.69	0.92 - 1.53
BSFI 3056	56,000	60,000	44,800	6.0	9.0	6.37	1.01 - 1.67
BSFI 3060	60,000	66,000	48,000	5.0	9.5	6.83	1.11 - 1.83
BSFI 3070	70,000	77,000	56,000	4.0	11.5	7.96	1.29 - 2.14
BSFI 3080	80,000	88,000	64,000	7.0	13.0	9.10	1.48 - 2.44
BSFI 3085	85,000	93,000	68,000	7.0	14.0	9.67	1.56 - 2.58
BSFI 3090	90,000	98,500	72,000	13.0	14.5	10.24	1.65 - 2.74
BSFI 3100	100,000	109,000	80,000	11.0	16.0	11.37	1.83 - 3.03
BSFI 3110	110,000	119,000	88,000	10.0	17.5	12.51	2.00 - 3.31
BSFI 3120	120,000	130,000	96,000	9.0	19.0	13.65	2.18 - 3.61

¹⁾ All figures are based on 1 mm air gap. (Each side)

²⁾ Braking force is based on a min clamping force, nominal coefficient of friction $\mu = 0.4$ and 2 brake surfaces.

³⁾ The operating pressure is the minimum needed for operating the brake

⁴⁾ Pad pressure for organic / sintered pads respectively (based on max. clamping force)

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Specification

BRAKING TORQUE

The braking torque M_B is calculated from following formula where:

a is the number of brakes acting on the disc

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

D_o is the brake disc outer diameter [m]

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

$$M_B = a \cdot F_B \cdot \frac{(D_o - 0,20)}{2} \text{ [Nm]}$$

$$F_B = F_C \cdot 2 \cdot \mu$$

CALCULATION FUNDAMENTALS

DUALSPRING

Weight of caliper without bracket:	Approx. 170 kg
Pad width:	200 mm
Pad area: (organic)	59,600 mm ² (*)
Max. wear of pad: (organic)	10 mm (*) "(=22 mm thick)"
Pad area: (sintered)	36,000 mm ² (*)
Max. wear of pad: (sintered)	10 mm (*) "(=22 mm thick)"
Nominal coefficient of friction:	$\mu = 0.4$
Total piston area - each caliper half:	88 cm ²
Total piston area - each caliper:	176 cm ²
Volume for each caliper at 1 mm stroke:	17.6 cm ³
Volume for each caliper at 3 mm stroke:	52.8 cm ³
Actuating time (guide value for calculation):	0.3 sec
Pressure connection/port:	1/4" BSP
Drain connection port:	1/8" BSP
Recommended pipe size:	10/8 mm
Maximum operating pressure	23.0 MPa
Operating temperature range - general	from -20°C to +70°C

(For temperatures outside this range contact Svendborg Brakes)

(*) On each brake pad.