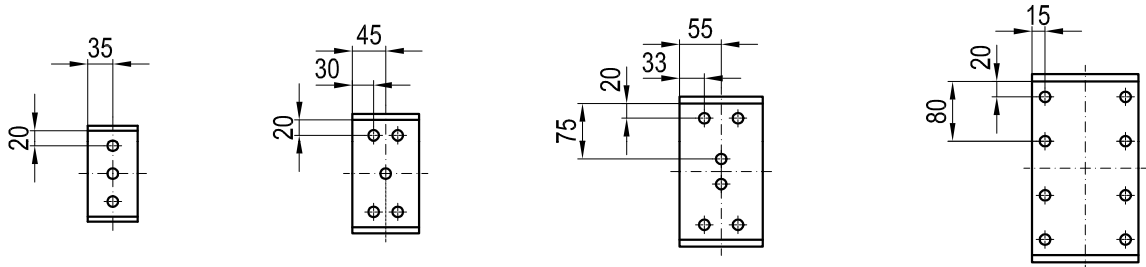
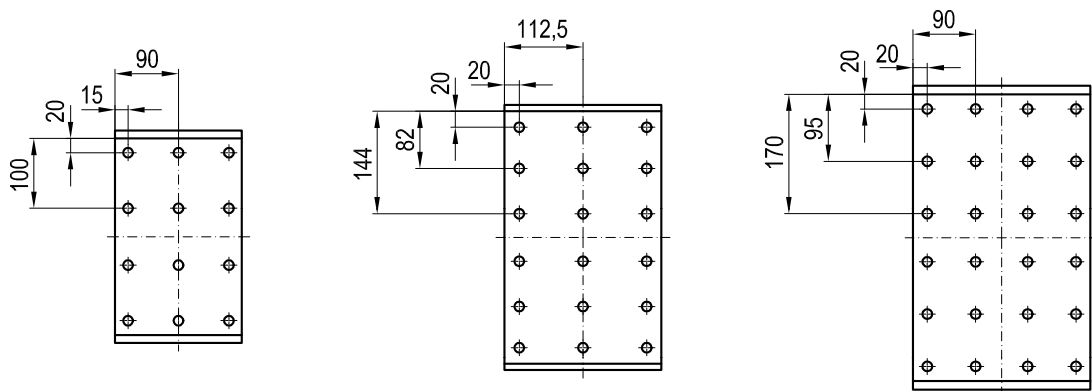


d1	200	250	315	400
----	-----	-----	-----	-----



d1	500	630	710
----	-----	-----	-----



All dimensions in [mm]

b2	c1	d1	l1	c2	l2
70	8	200	132	2	15
90	8	250	162	2	15
110	10	315	204	3	18
140	10	400	256	3	18
180	12	500	320	3	20
225	12	630	400	3	20
255	15	710	452	3	22

Type HWN

Material description:

Friction material on a caoutchouc/ syntetic resin and metal fibre coating, flexible, asbestos free

Recommended application:

Drum brake linings for agriculture and industrial applications

Technical data:

Average dynamic friction coefficient μ (dry) _____ approx. 0.43

Recommended operational demand:

a) surface pressure - [daN/cm²] _____ 5 - 100

b) sliding rate - [m/s] _____ < 20

Max. permissible temperature [°C]:

a) for continuous operation _____ 280

b) temporary _____ 350

Phisical properties:

Density (20°C) [g/cm³] _____ 2,20 ± 10%

permissible compression stress [N/mm²] _____ 8

permissible tensile stress [N/mm²] _____ 2

permissible shearing stress [N/mm²] _____ 3

Remarks:

The specified temperatures are average friction surface temperatures on the lining or drum surface. With maximum permissible temperature (short duration) is meant the peak value which may occur in an emergency situation. If the friction material is subjected to this temperature for more than two minutes, permanent damage to the material can result. Moreover an extremely high reduction of the friction coefficient is possible when this temperature limit is exceeded. Generally the maximum temperature in the area where the linings are fastened should not exceed 250°. Colour variations result from the use of natural raw materials and cannot be avoided.

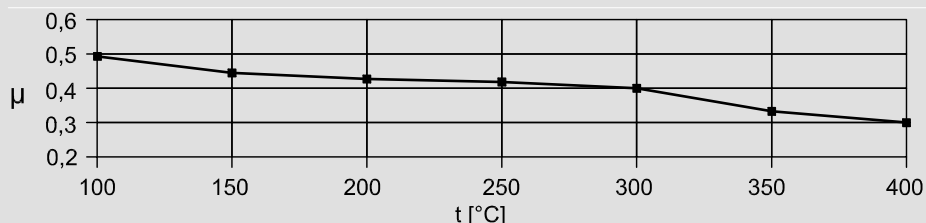
Note on machining:

The material can be machined using conventional cutting tools. For work on a large scale, the use of carbide tipped tools is recommended. Use dust extractors when machining.

Friction Characteristics

against grey cast
iron
GG26

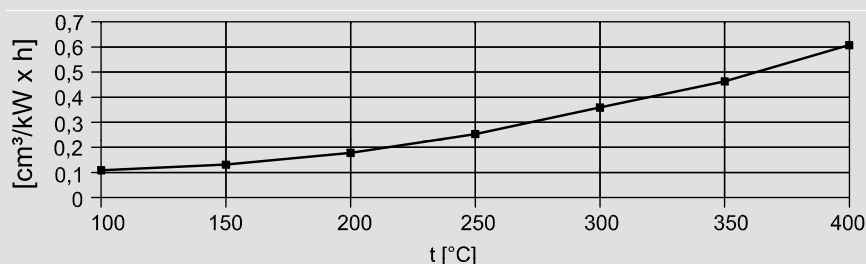
v=9 m/s
p=60 N/cm²



Wear Characteristics

against grey cast
iron
GG26

v=9 m/s
p=60 N/cm²



Type HWN-N

Material description:

Friction material on a caoutchouc/ syntetic resin, without metal fibre coating, flexible, asbestos free

Recommended application:

Drum brake linings for agriculture and industrial applications

Technical data:

Average dynamic. friction coefficient μ (dry) _____ approx. 0.40

Recommended operational demand:

a) surface pressure - [daN/cm²] _____ 5 - 100

b) sliding rate for continuous operation- [m/s] _____ < 35

Max. permissible temperature [°C]:

a) for continuous operation _____ 250

b) temporary _____ 400

Phisical properties:

Density (20°C) [g/cm³] _____ 1,71 ± 10%

permissible compression stress [N/mm²] _____ 8

permissible tensile stress [N/mm²] _____ 5,2

permissible shearing stress [N/mm²] _____ 3

Remarks:

The specified temperatures are average friction surface temperatures on the lining or drum surface. With maximum permissible temperature (short duration) is meant the peak value which may occur in an emergency situation. If the friction material is subjected to this temperature for more than two minutes, permanent damage to the material can result. Moreover an extremely high reduction of the friction coefficient is possible when this temperature limit is exceeded. Generally the maximum temperature in the area where the linings are fastened should not exceed 250°. Colour variations result from the use of natural raw materials and cannot be avoided.

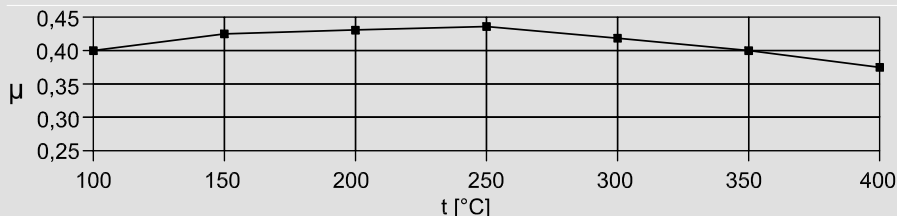
Note on machining:

The material can be machined using conventional cutting tools. For work on a large scale, the use of carbide tipped tools is recommended. Use dust extractors when machining.

Friction Characteristics

against grey cast iron
GG26

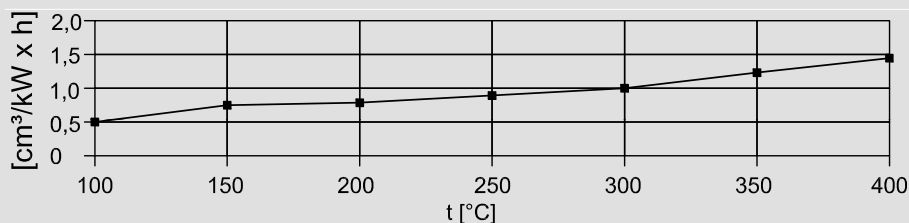
v=9 m/s
p=60 N/cm²



Wear Characteristics

against grey cast iron
GG26

v=9 m/s
p=60 N/cm²



Type HWN-12

Material description:

Rolled friction material on a caoutchouc/ syntetic resin with metal fibre coating, asbestos free

Recommended application:

Small drum brake linings for agriculture and industrial applications.

Technical data:

Average dynamic friction coefficient μ (dry) _____ approx. 0,45

Recommended operational demand:

a) surface pressure - [N/cm²] _____ 5-100

b) sliding rate - [m/s] _____ < 20

Max. permissible temperature [°C]:

a) for continuous operation _____ < 300

b) temporary _____ < 400

Phisical properties:

Density (20°C) [g/cm³] _____ 2,30 ± 10%

permissible compression stress [N/mm²] _____ 8

permissible tensile stress [N/mm²] _____ 4

permissible shearing stress [N/mm²] _____ 4

Remarks:

The specified temperatures are average friction surface temperatures on the lining or drum surface. With maximum permissible temperature (short duration) is meant the peak value which may occur in an emergency situation. If the friction material is subjected to this temperature for more than two minutes, permanent damage to the material can result. Moreover an extremely high reduction of the friction coefficient is possible when this temperature limit exceeded. Generally the maximum temperature in the area where the linings are fastened should not exceed 250°. Colour variations result from the use of natural raw materials and cannot be avoided.

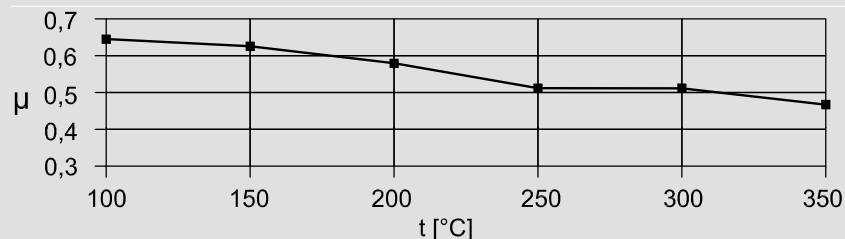
Note for machining:

The material can be machined using conventional cutting tools. For work on a large scale, the use of carbide tipped tools is recommended. Use dust extractors when machining.

Friction Characteristics

against grey cast iron
GG26

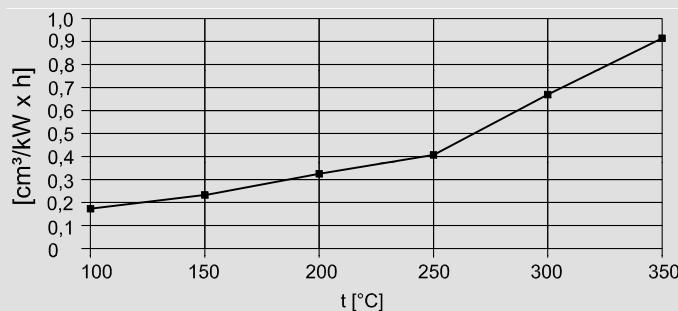
v=8 m/s
p=33,5 N/cm²



Wear Characteristics

against grey cast iron
GG26

v=8 m/s
p=33,5 N/cm²



Type HKL

Material description:

Woven brake lining, impregnated, light brown, asbestos free

Recommended application:

Cranes, windlass, band brakes, general drilling facility

Technical Data:

Average, dynamic friction of coefficient μ (dry) _____ approx. 0,39

Recommended operational demand:

a) surface pressure - p_{max} [N/cm²] _____ 200
b) sliding rate - [m/s] _____ < 24

Max. permissible temperature [°C]:

a) for continuous operation _____ 200
b) temporary _____ 400

tensile stress (ISO527 [MPa]) _____ ca. 9
specific weight (DIN 53479 [g/cm³]) _____ ca. 1,1 – 1,2
bonding _____ good

Not approved for oiled linings. Occasional oil drops don't harm the material.

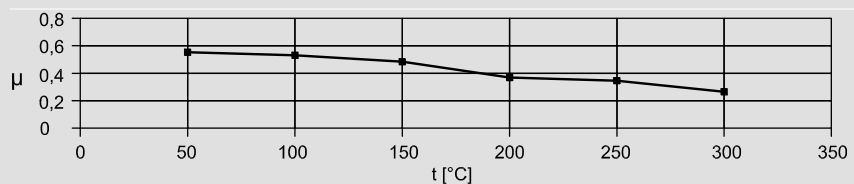
The maximal admissible forces should not appear simultaneously. A warranty cannot be granted, because of miscellaneous fields of application.

From lining tests acquired friction coefficients should not be unchecked used in praxis.

Friction Characteristics

against grey cast iron
GG26

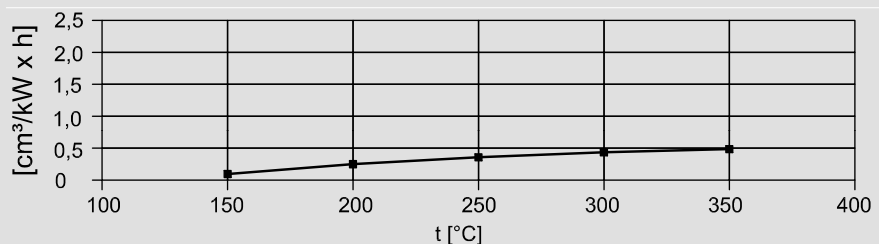
$v=6$ m/s
 $p=60$ N/cm²

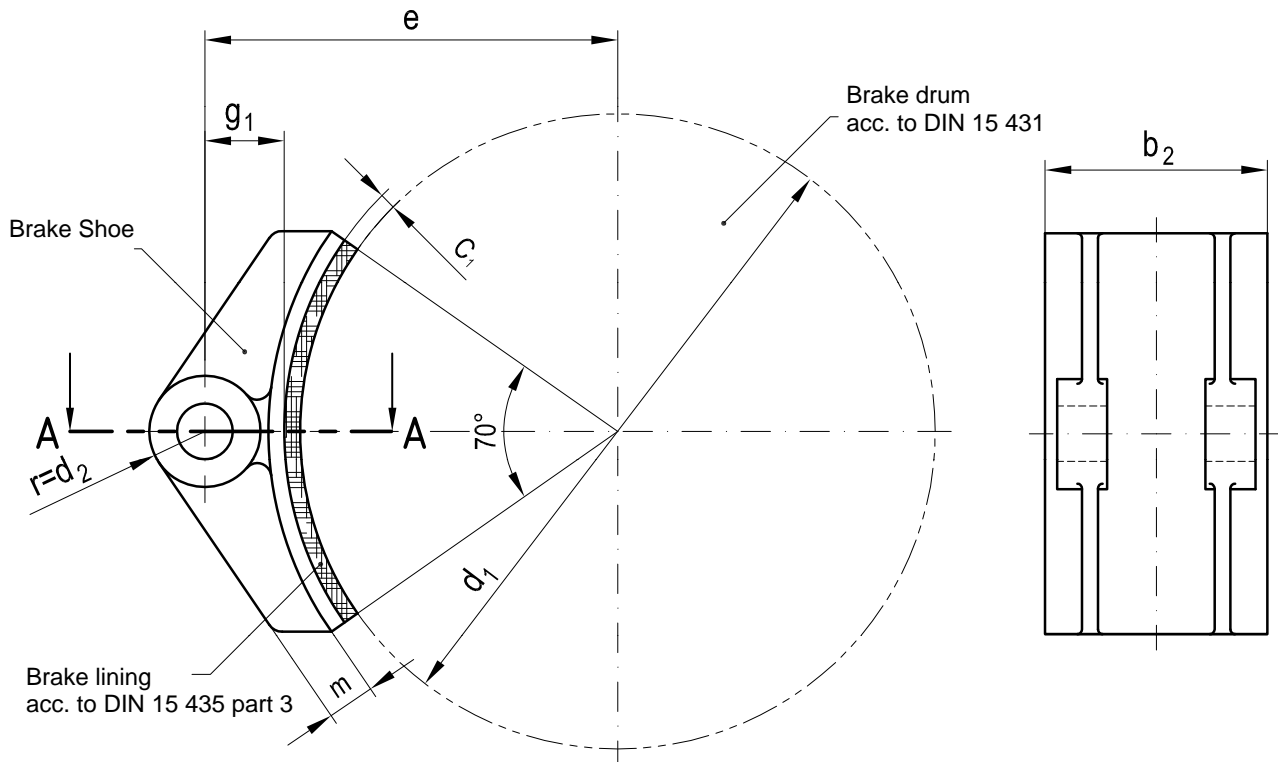


Wear Characteristics

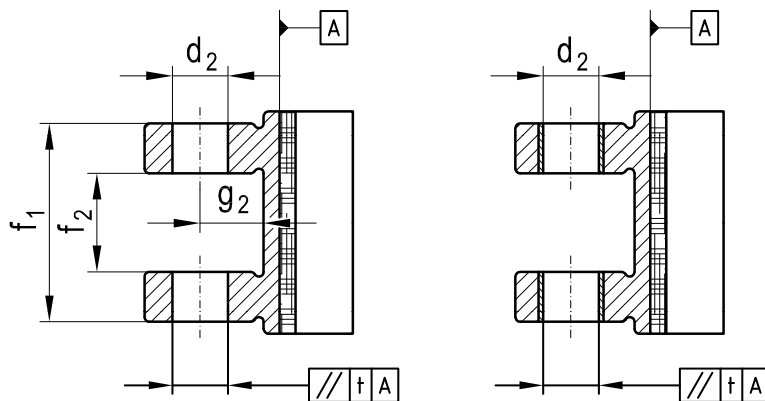
against grey cast iron
GG26

$v=15$ m/s
 $p=50$ N/cm²





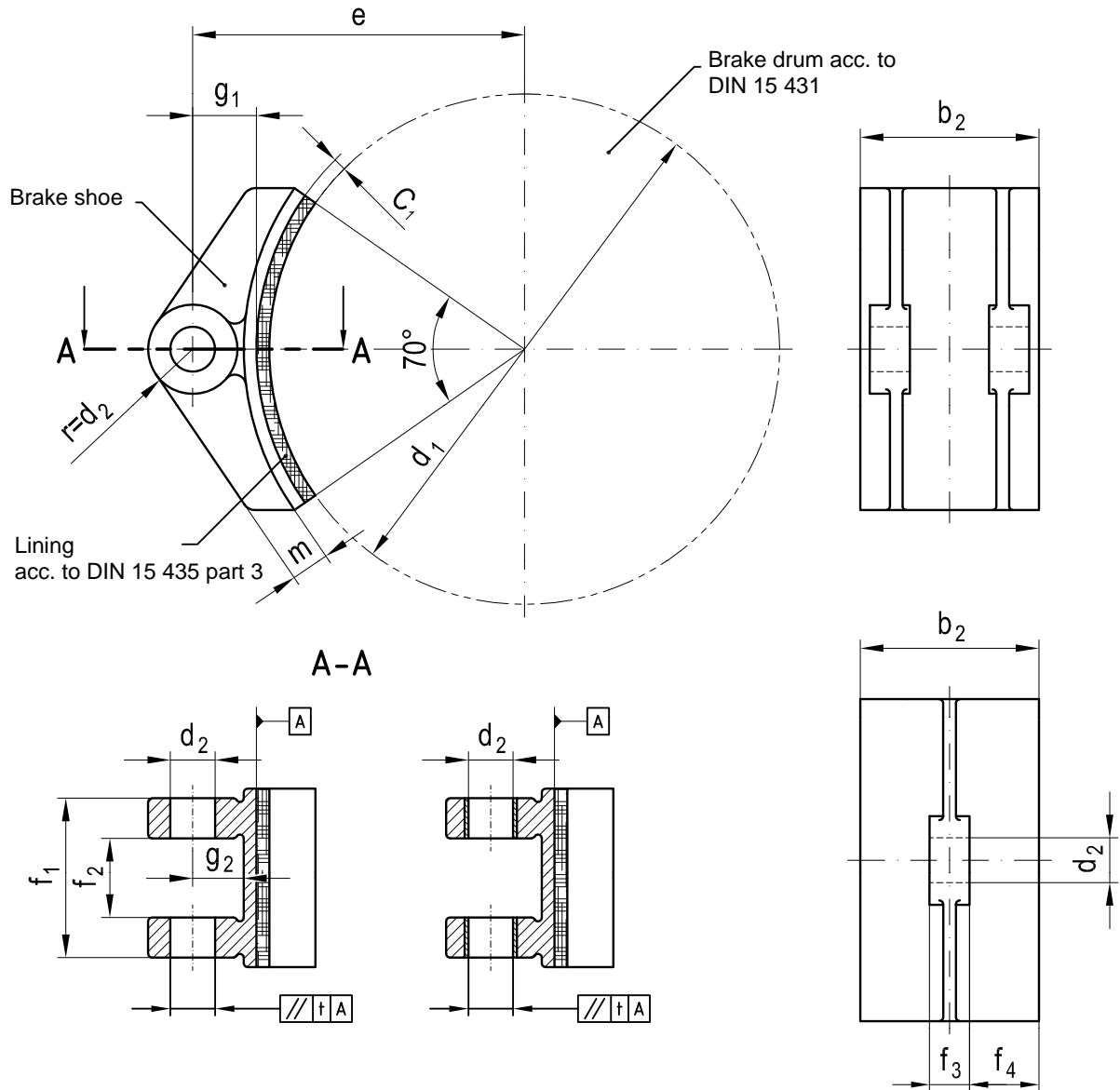
A-A



All dimensions in [mm]

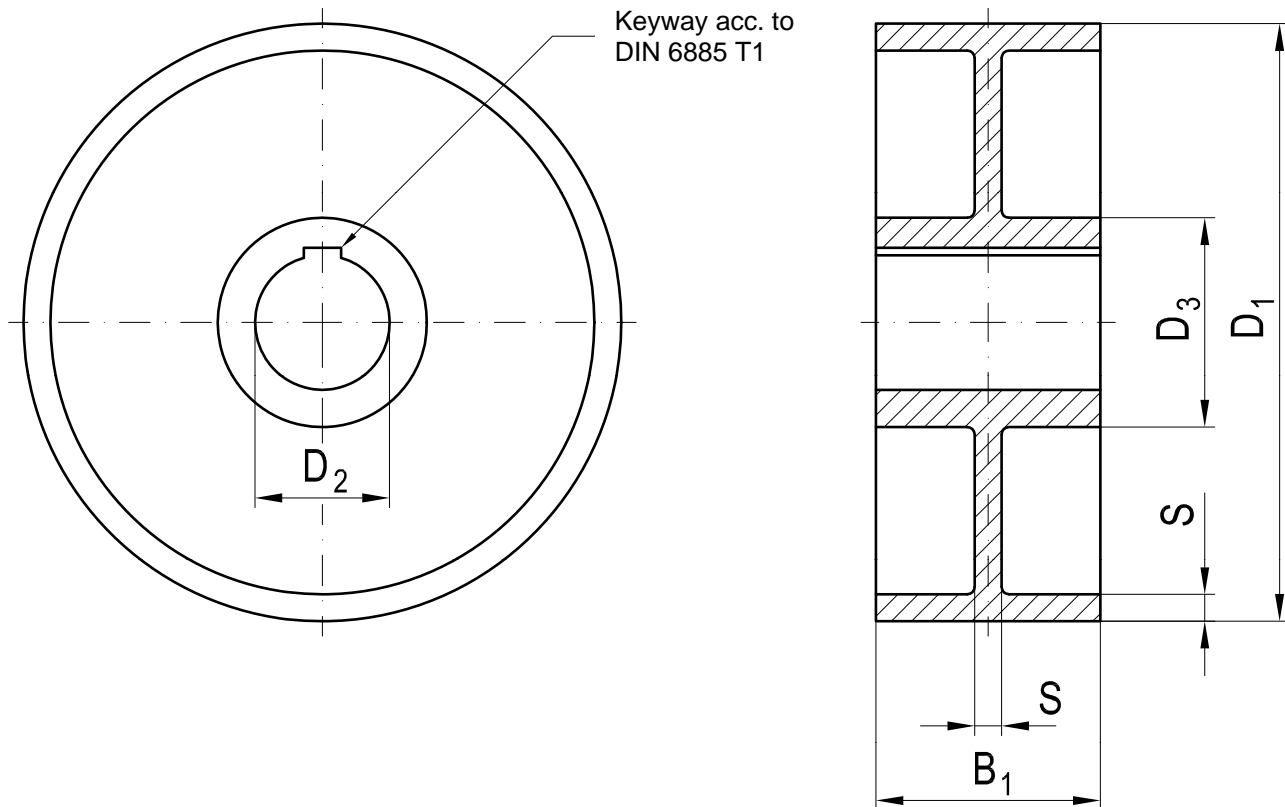
d ₁	b ₂	c ₁	d ₂	e	f ₁	f ₂	g ₁	g ₂	m	t	weight [kg]
			D10		0	+0,2			max.		
					-0,2	0					
200	70	8	20	140	65	35	32	24	17	0.1	0.5
250	90	8	25	170	80	40	37	29	22	0.1	0.8
315	110	10	30	212	100	50	44.5	34.5	25	0.15	1.4
400	140	10	35	260	125	62	50	40	30	0.15	2.1
500	180	12	40	320	160	80	58	46	33	0.15	3.9
630	225	12	45	390	200	100	63	51	38	0.2	5.7
710	255	15	50	440	224	112	70	56	40	0.2	8.6

Design A1 C Brake shoes made from cast aluminium w/ steel bushings, without holes (to bond the linings)
 Design A2 C Brake shoes made from cast aluminium w/steel bushings, with rivet holes (to rivet the lining)



Please insert the dimensions you need in the following schedule, according to the above-mentioned drawing:

Design	<input type="checkbox"/> Single-webbed	<input type="checkbox"/> Double-webbed
d ₁		
b ₂		
c ₁		
d ₂		
e		
f ₁		
f ₂		
f ₃		
f ₄		
g ₁		
g ₂		
m _{max.}		



All dimensions in [mm]

D1	B1	Pilot hole	Finish bored	D3	S design	weights (kg) design		Mass moment of inertia J (kgm ²)		max. RPM
		D2	D2 max ^{H7}		1, 2	1	2	exec. 1	exec. 2	min ⁻¹
160	60	18	40	65	8	3.6	3.9	0.013	0.014	4200
200	75	22	50	80	10	6.9	7.5	0.038	0.042	3350
250	95	27	60	95	12	12.9	14.0	0.114	0.124	2700
315	118	37	80	125	15	26.0	28.0	0.358	0.390	2150
400	150	51	90	140	18	48.0	52.0	1.110	1.210	1690
500	190	66	100	160	20	84.0	91.0	3.090	3.370	1350
630	236	66	110	170	25	153.0	167.0	9.520	10.400	1070
710	265	85	120	190	30	228.0	249.0	18.200	19.800	950
800	300	95	140	220	40	375.0	410.0	37.900	41.300	840

Design 1: Casting material spheroidal cast iron GGG 40 manufactured from solid

Brake drums D 75, 100 and 125 as well as special design on request.

Design 2: Steel material C 45 or St 52-3 manufactured from solid

Order example:
5 Brake drums D 400 design 1 material GGG40, finish bored with D 60 and keyway.

