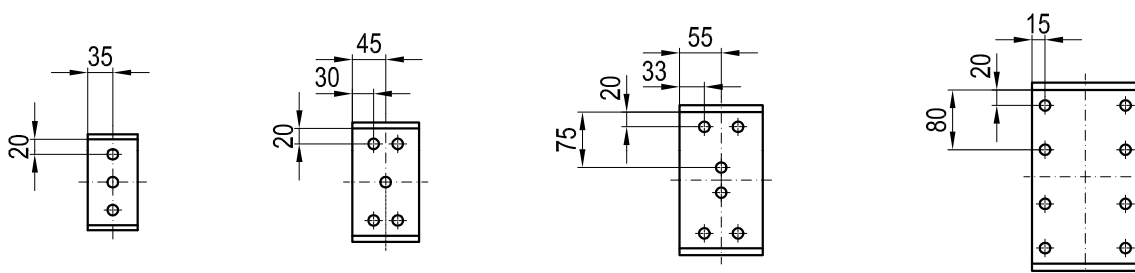
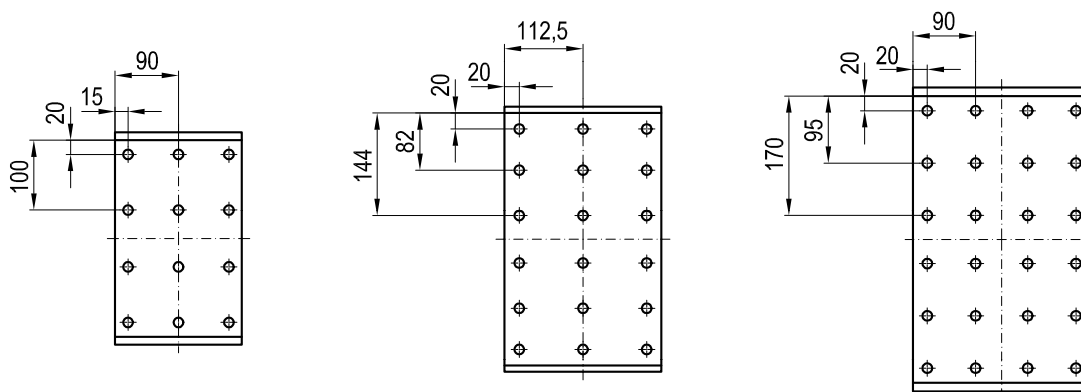


d1	200	250	315	400
----	-----	-----	-----	-----



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-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  $\mu$  (dry) \_\_\_\_\_ approx. 0.40

### Recommended operational demand

a) surface pressure - [daN/cm<sup>2</sup>] \_\_\_\_\_ 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/cm<sup>3</sup>] \_\_\_\_\_ 1,71 ± 10%

permissible compression stress [N/mm<sup>2</sup>] \_\_\_\_\_ 8

permissible tensile stress [N/mm<sup>2</sup>] \_\_\_\_\_ 5,2

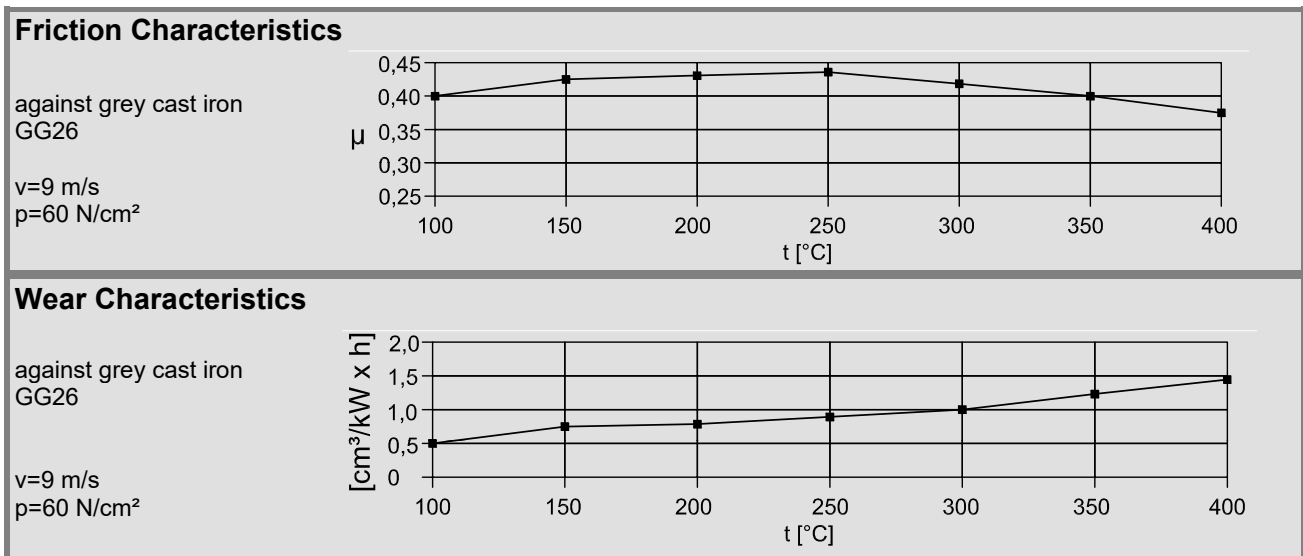
permissible shearing stress [N/mm<sup>2</sup>] \_\_\_\_\_ 3

### 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.





## 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  $\mu$  (dry) \_\_\_\_\_ approx. 0.39

### Recommended operational demand

a) surface pressure -  $p_{max}$  [N/cm<sup>2</sup>] \_\_\_\_\_ 200

b) sliding rate - [m/s] \_\_\_\_\_ < 24

### Max. permissible temperature [°C]

a) for continuous operation \_\_\_\_\_ 200

b) temporary \_\_\_\_\_ 400

### Physical properties:

tensile stress (ISO527 [MPa]) \_\_\_\_\_ approx. 9

specific weight (DIN 53479 [g/cm<sup>3</sup>]) \_\_\_\_\_ approx. 1.1 – 1.2

bonding \_\_\_\_\_ good

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

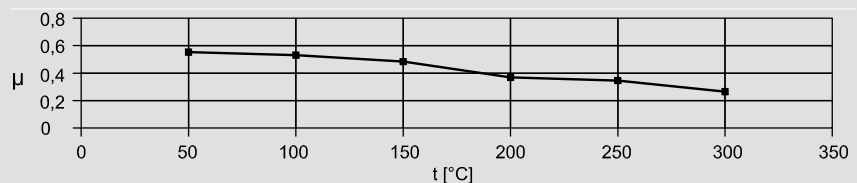
The maximal admissible forces should not appear simultaneously. A warranty cannot be granted, because of miscellaneous fields of application.

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

### Friction Characteristics

against grey cast iron  
GG26

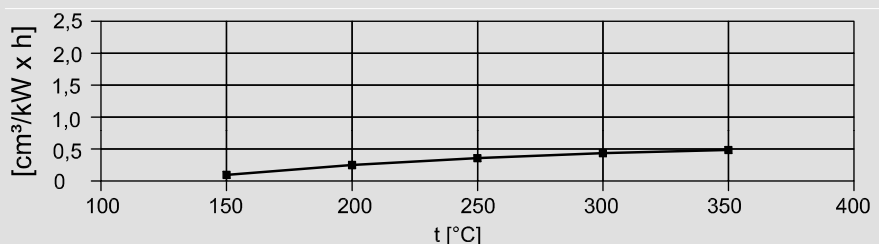
$v=6$  m/s  
 $p=60$  N/cm<sup>2</sup>

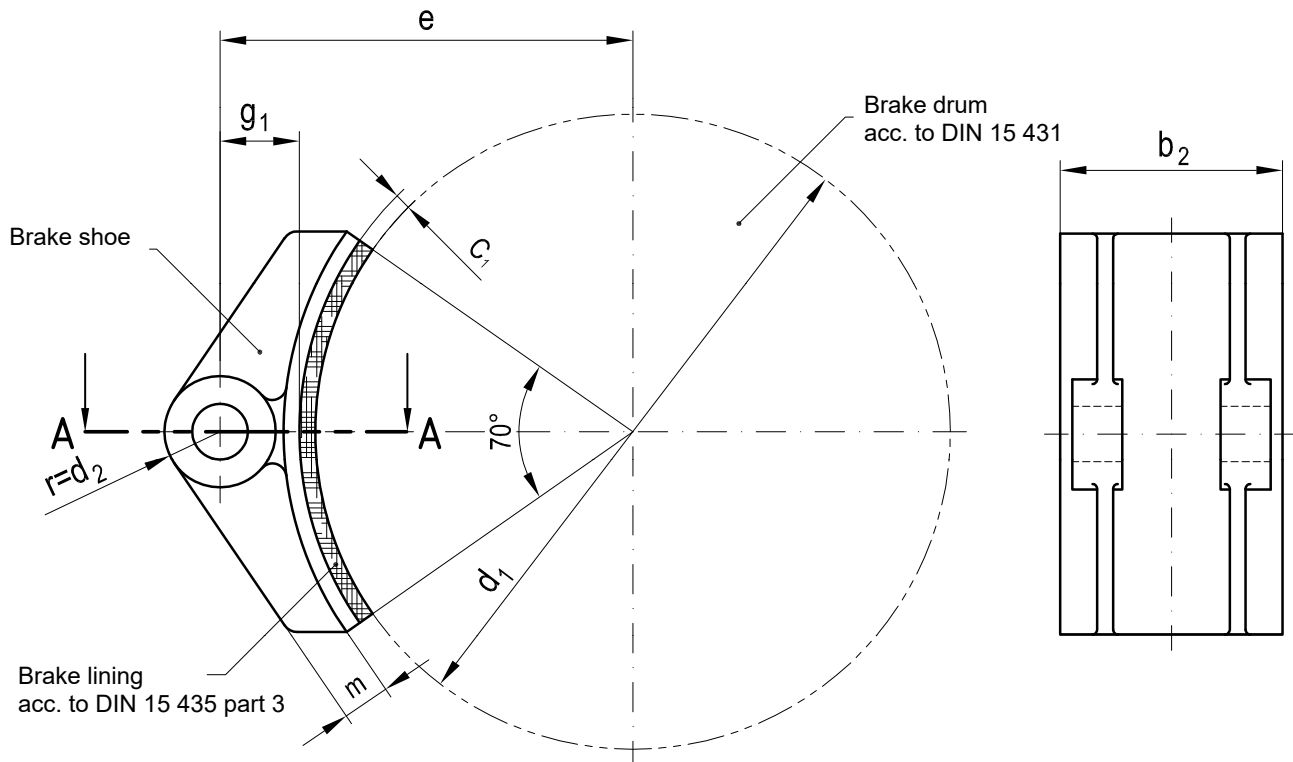


### Wear Characteristics

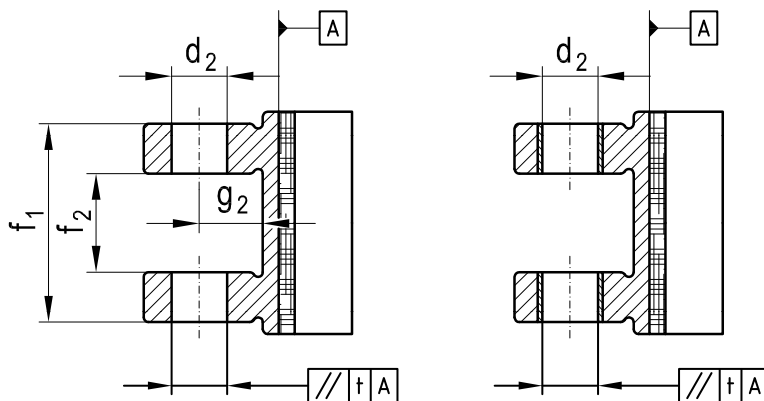
against grey cast iron  
GG26

$v=15$  m/s  
 $p=50$  N/cm<sup>2</sup>





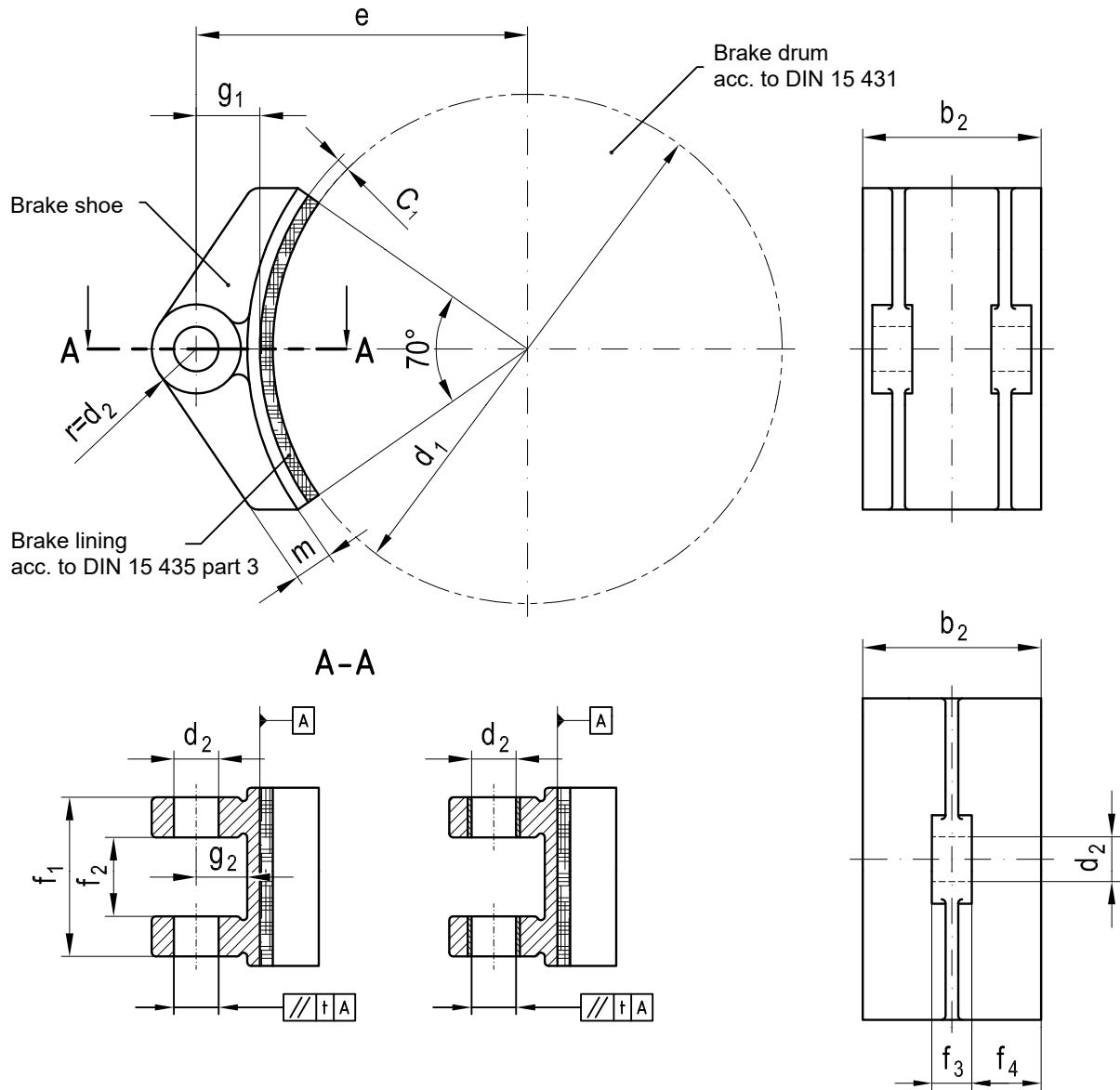
A-A



All dimensions in [mm]

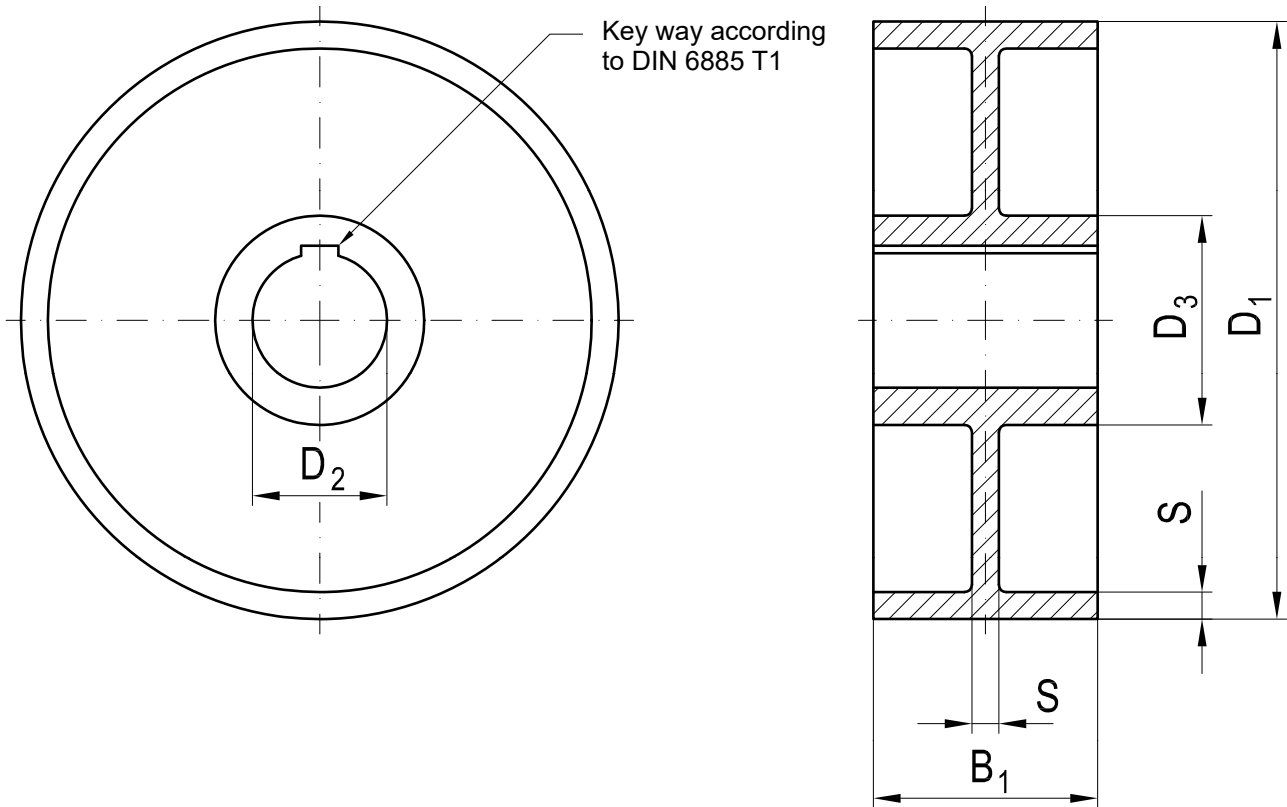
d <sub>1</sub>	b <sub>2</sub>	c <sub>1</sub>	d <sub>2</sub>	e	f <sub>1</sub>	f <sub>2</sub>	g <sub>1</sub>	g <sub>2</sub>	m	t	Gewicht [kg]
			<b>D10</b>		<b>0</b>	<b>+0,2</b>			<b>max.</b>		
					<b>-0,2</b>	<b>0</b>					
200	70	8	20	140	65	35	32	24	17	0.1	0.5
250	90	8	25	170	80	40	37	29	22	0.1	0.8
315	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 indicate your desired dimension on the above drawing:

Design	<input type="checkbox"/> Single-Bar	<input type="checkbox"/> Twin-Bar
d <sub>1</sub>		
b <sub>2</sub>		
c <sub>1</sub>		
d <sub>2</sub>		
e		
f <sub>1</sub>		
f <sub>2</sub>		
f <sub>3</sub>		
f <sub>4</sub>		
g <sub>1</sub>		
g <sub>2</sub>		
m <sub>max.</sub>		



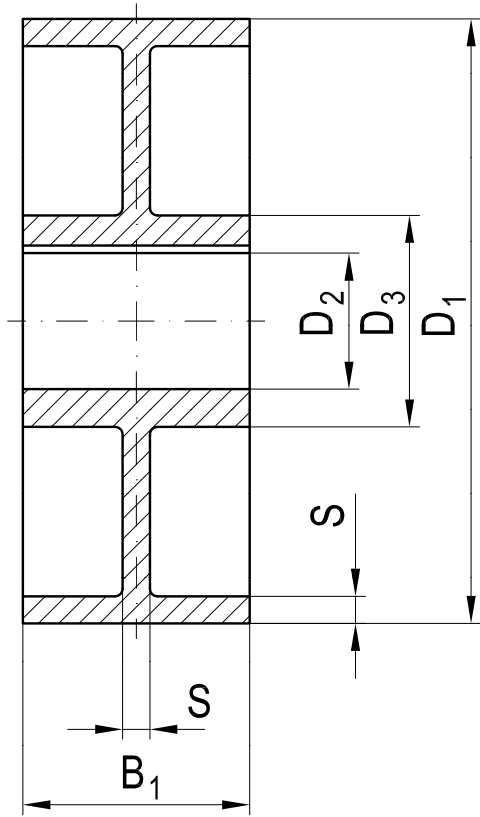
All dimensions in [mm]

D1	B1	Pilot hole D2	Finish bore D2 <sub>max</sub> <sup>H7</sup>	D3	S Design 1, 2	Weight (kg) Design		Mass moment of inertia J (kgm <sup>2</sup> )		max. RPM min <sup>-1</sup>
						1	2	Design 1	Design 2	
160	60	15	40	65	8	3.6	3.9	0.013	0.014	4200
200	75	20	50	80	10	6.9	7.5	0.038	0.042	3350
250	95	25	60	95	12	12.9	14.0	0.114	0.124	2700
315	118	30	80	125	15	26.0	28.0	0.358	0.390	2150
400	150	35	90	140	18	48.0	52.0	1.110	1.210	1690
500	190	50	100	160	20	84.0	91.0	3.090	3.370	1350
630	236	60	110	170	25	153.0	167.0	9.520	10.400	1070
710	265	70	120	190	30	228.0	249.0	18.200	19.800	950
800	300	80	140	220	40	375.0	410.0	37.900	41.300	840

**Design 1:** Casting material spheroidal cast iron GGG 40

**Design 2:** Steel material S355J2+N or C45

special design on request



Brake drum according to DIN 15431

Required data:

Diameter D1: \_\_\_\_\_ mm

Diameter D2: \_\_\_\_\_ mm  
Diameter Tolerance

Diameter D3: \_\_\_\_\_ mm

Web thickness S: \_\_\_\_\_ mm

Bright B1: \_\_\_\_\_ mm

Miscellaneous Requirements:

Blank lines for miscellaneous requirements.