

General notes

Operation	3a.03.00
Recommendations for design and assembly	3a.03.00
Application examples and versions	3a.04.00

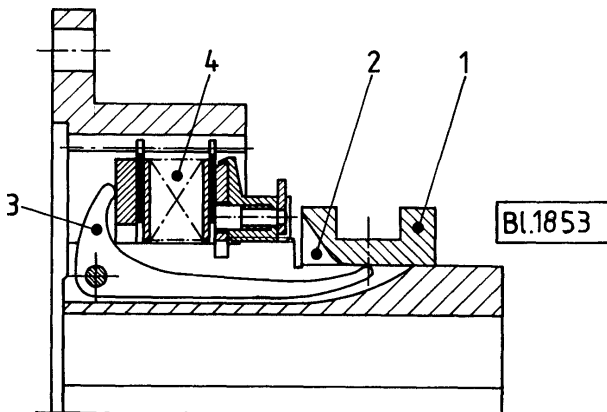
Product data sheets

Sinus®-multi-plate clutches with flange housing	Series 0100	3a.06.00
Sinus®-multi-plate clutches with shoulder housing	Series 0100-002	3a.08.00
Sinus®-multi-plate clutches with hub housing	Series 0100-004/005	3a.10.00
Sinus®-multi-plate clutches with cup housing	Series 0100-006/007	3a.12.00
Sinus®-multi-plate double clutch with flange housings	Series 0300	3a.14.00
Sinus®-multi-plate double clutch with shoulder housings	Series 0300-002	3a.16.00
Sinus®-multi-plate double clutch with hub housings	Series 0300-004/005	3a.18.00
Sinus®-multi-plate double clutch with cup housings	Series 0300-006/007	3a.20.00

Accessories

Striker forks and sliding blocks	3a.23.00
Actuator rings	3a.24.00

Operation

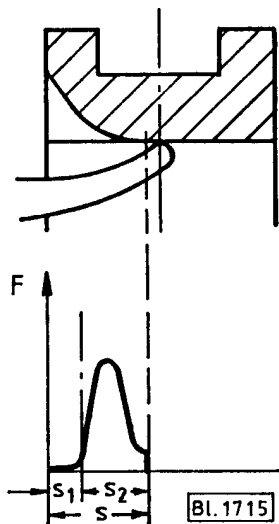


For engagement of the clutch, the sliding sleeve (1) with its cam profiles (2), enclosed by the striker fork and actuator ring, is pushed over the long ends of three angle levers (3) installed in the clutch. This causes the short ends of the angle levers to be pressed against the plate stack (4), bringing about frictional connection between the plates. The resilience of the clutch levers (3) prevents sudden losses of torque as the plates wear and thus means that the clutch only needs to be adjusted at extended intervals.

Recommendations for design and assembly

In order to ensure easy engagement of the clutch, one-sided pressure on the sliding sleeve must be avoided; that is to say, the sliding sleeve must be enclosed on at least 180° of its circumference. Actuating parts should be selected in such a way that the clutch can be completely engaged and disengaged in order to prevent additional heat in the plate stack. Sliding rings and/or sliding blocks on the sliding sleeve should not be subject to any force in the

Engagement diagram



- F = Engagement force at the sliding sleeve
- S₁ = Initial stroke during which the gap between the plates and the corrugation in the Sinus® inner plates are eliminated
- S₂ = Final stroke during which the full pressure is applied and the levers are deflected
- S = Total stroke of sliding sleeve

engaged and disengaged positions in order to prevent wear and overheating.

Fig. 3 on page 3a.05.00 shows a method of engaging and disengaging the clutch by means of a central sliding rod and cross pin.

As the cam profiles of the sliding sleeve move over the long ends of the angle levers, the engagement force develops as shown in the diagram. Once the gap between the plates has been removed and the Sinus® plates have been pressed flat in the initial part of the stroke S₁, the engagement force is built up during S₂ by bending of the levers. At the end of S₂ the engagement force reduces to zero again. There is normally no axial force acting on the actuator ring when the clutch is engaged. If the machine is subjected to severe vibrations, the sliding sleeve can be fitted with an additional notched groove or with a ball bearing locking device to ensure that the clutch cannot disengage inadvertently.

The maximum manual force that should be applied when a clutch is actuated by hand is 150 N. If engagement forces in excess of this level are required, compressed air, hydraulic fluid and magnetic force can be used as auxiliary energy for engagement.

All clutches can also be used as brakes.

Application examples

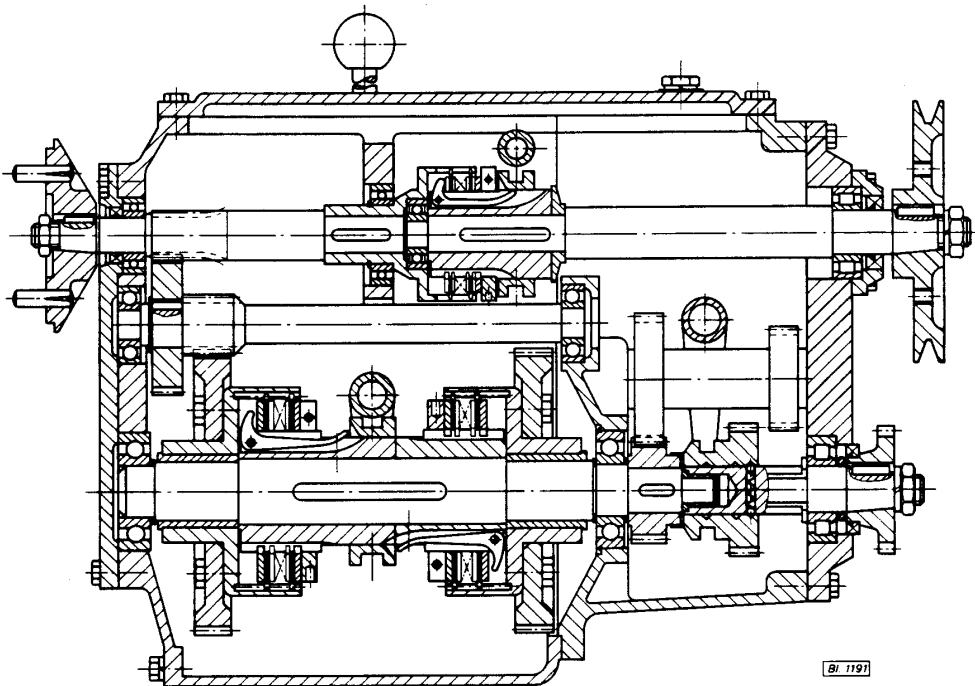


Fig. 1: Mechanically actuated Sinus® multi-plate clutches fitted in the transmission of a vibration roller.

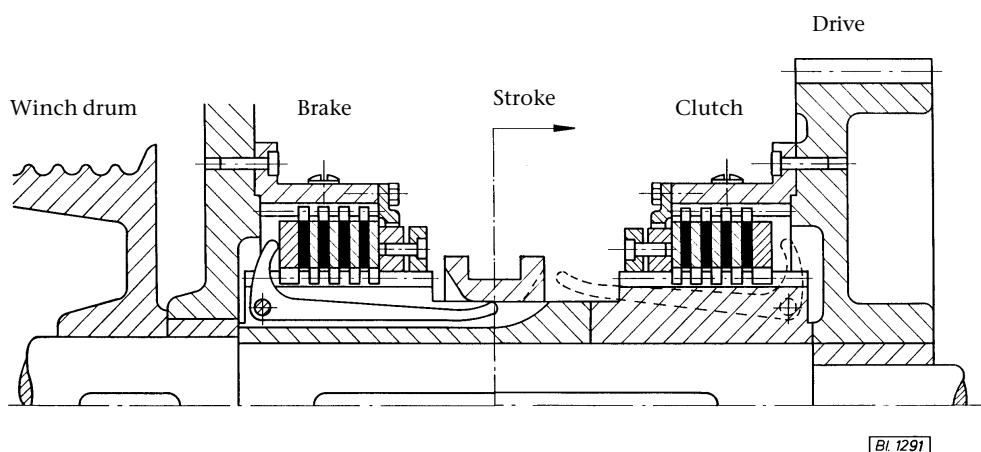


Fig. 2: Sinus® multi-plate double clutch series **0300-020-**, with flange housings (**intermediate position without function**) fitted in a cable winch.

Application examples

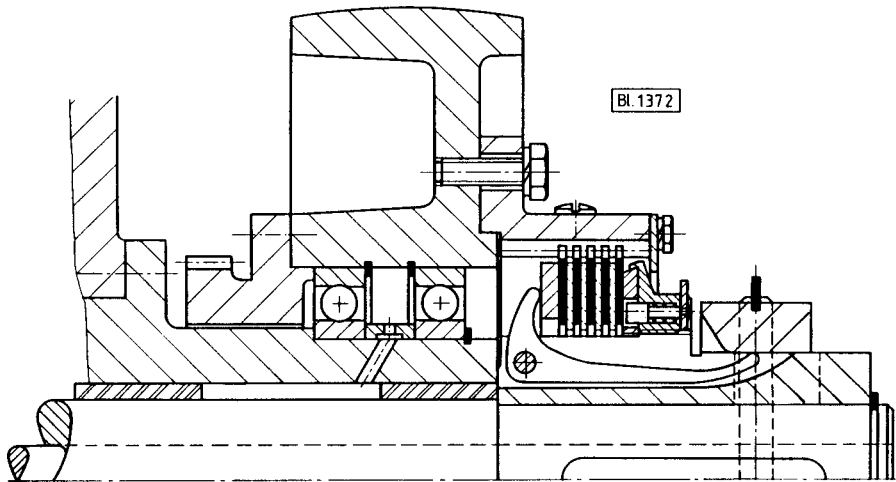


Fig. 3: Sinus® multi-plate clutch, series **0100-030-**, with flange housing and **internal actuation**. The clutch is actuated by a sliding rod in the hollow shaft. The sliding sleeve and control rod are linked with a cross pin.

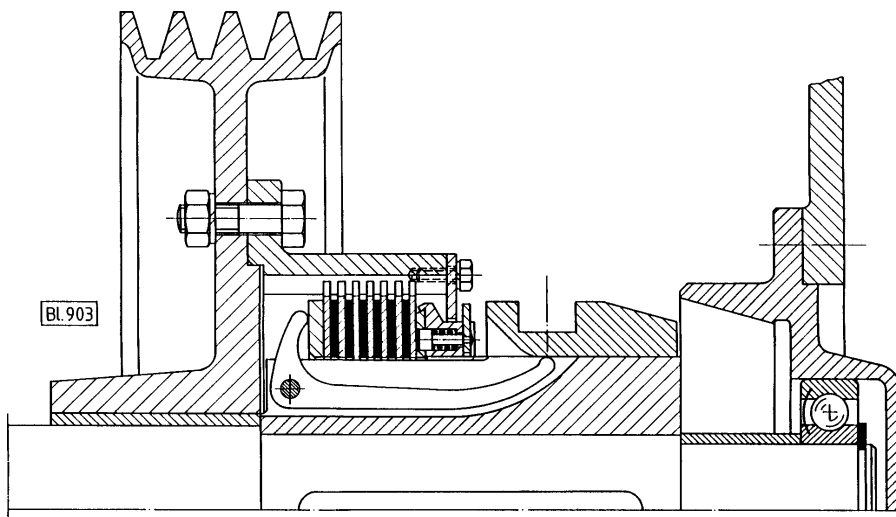


Fig. 4: Sinus® multi-plate clutch, series **0100-010-**, with flange housing and **brake cone**. To enable the plate carrier, which sits on the drive shaft, to be stopped immediately when the clutch is disengaged, the sliding sleeve is fitted with a brake cone, which - when the clutch is disengaged - is pressed into a matching female cone mounted on the machine frame.

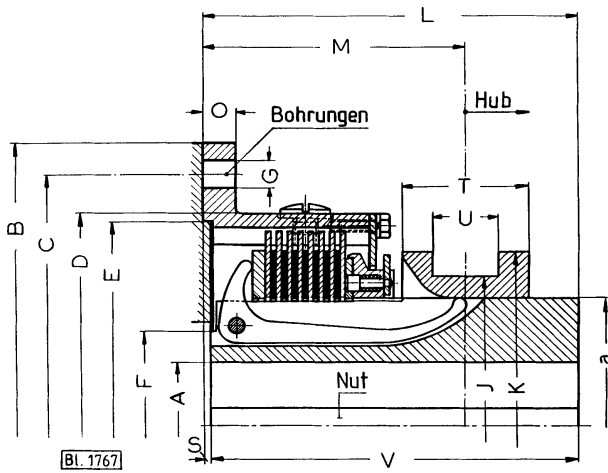


Figure 1

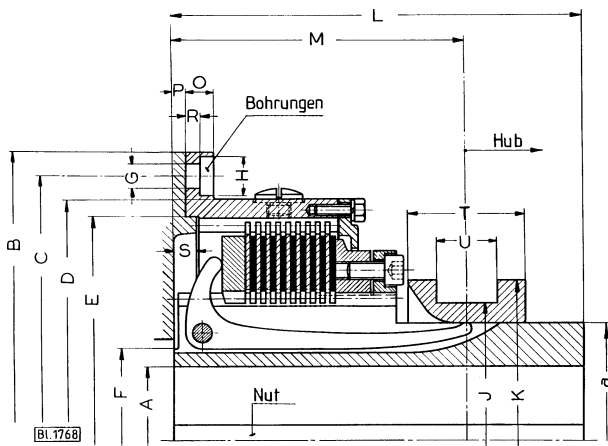


Figure 2

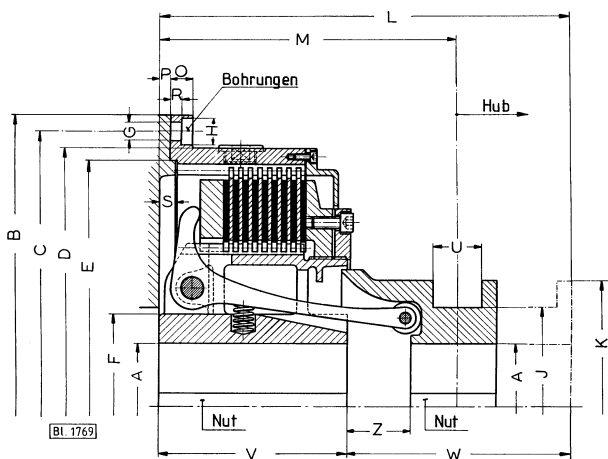


Figure 3

Bohrungen = Bores
 Hub = Stroke
 Nut = Keyway

Open version without case cover and locking screw but with peripheral bores available on request: series **0100-001**

Mechanically actuated Sinus®-multi-plate clutches with flange housing, closed version



Series Figure Size	0100-000-Size-000000													
	1 07	1 11	1 15	1 23	1 25	1 31	1 39	2 43	2 47	2 55	2 63	3 69	3 75	
Mdyn	Nm													
J	kgcm ²													
Weight	kg													
Engagement force (diseng. force approx. 50 %)	approx. N													
ØA	prebored													
Recommended bores ¹⁾	A max	H7												
	Keyway	DIN 6885												
	A	15	22	32	45	45	48	60	70	70	80	100	100	130
	Keyway	5x	6x	10x	14x	14x	14x	18x	20x	20x	22x	28x	28x	32x
	A	2,3	2,8	3,3	3,8	3,8	3,8	4,4	4,9	4,9	5,4	6,4	6,4	7,4
	A	20	30	40	40	45	55	65	65	65	60			
	Keyway	6x	8x	12x	12x	14x	16x	18x	18x	18x	18x			
	Keyway	2,8	3,3	3,3	3,3	3,3	3,8	4,3	4,4	4,4	4,4			
	A		28	35	35	40	50	55	60					
	Keyway		8x	10x	10x	12x	14x	16x	18x					
	Keyway		3,3	3,3	3,3	3,3	3,8	4,3	4,4					
	A		24	30	30	38/35	45	50	55					
Keyway		8x	8x	8x	10x	14x	14x	16x						
Keyway		3,3	3,3	3,3	3,3	3,8	3,8	4,3						
A		22	25	25	30	40	45	45						
Keyway		6x	8x	8x	8x	12x	14x	14x						
Keyway		2,8	3,3	3,3	3,3	3,3	3,8	3,8						
Diameters	B	95	130	145	180	180	195	225	240	250	310	370	430	500
	C	82	110	125	155	155	175	200	215	230	285	340	400	470
	D	70	90	100	125	135	150	170	195	210	260	315	370	435
	E H7	55	90	90	125	125	140	170	185	195	245	295	345	410
	F max	25	35	45	55	55	65	75	80	80	100	120	125	175
	G	7	10,5	10,5	10,5	10,5	10,5	10,5	10,5	10,5	13	15	17	17
	H	-	-	-	-	-	-	-	-	17	19,5	23,5	25,5	25,5
	Number of bores	3	4	4	4	4	4	6	6	6	6	6	6	6
	J	45	60	70	85	85	85	120	120	120	145	175	145	175
	K	55	75	85	100	100	100	140	140	140	170	205	170	205
	a	35	50	60	72	72	72	102	102	102	120	153	-	-
Length dimensions	L	56	83	83	98	98	108	148	148	175	205	230	295	310
	M	37	60	60	70	70	76	103	103	125	148	160	232	235
	Stroke	9	10	11	12	12	16	20	20	25	30	35	40	50
	O	4	6	6	10	10	10	12	12	12	15	15	20	20
	P	-	-	-	-	-	-	-	-	5	10	10	10	10
	R	-	-	-	-	-	-	-	-	6	7,5	7,5	10	10
	S	1	2	2	3	3	3	3	3	10	15	15	15	15
	T	19	24	24	32	32	32	50	50	50	55	70	-	-
	U	10	10	10	15	15	15	26	26	26	26	30	26	30
	V	55	81	81	95	95	105	145	145	-	-	-	145	165
	W	-	-	-	-	-	-	-	-	-	-	-	150	145
	Z	-	-	-	-	-	-	-	-	-	-	-	35	20

¹⁾ Bore diameters in bold print are available ex stock.

Clutches of size 55 and upwards with roller levers.
Clutches for higher torques on request.

Friction combinations

Standard version steel/steel for wet-running.
On request steel/sintered lining for wet- or dry-running or steel/organic lining for dry-running only. When using organic friction linings, the plate chamber must be sealed to prevent lubricants getting in.

Tolerances

For bores and keyways see section 1 "Technical information"

Accessories

See pages 3a.23.00 and 3a.24.00

Figure 1

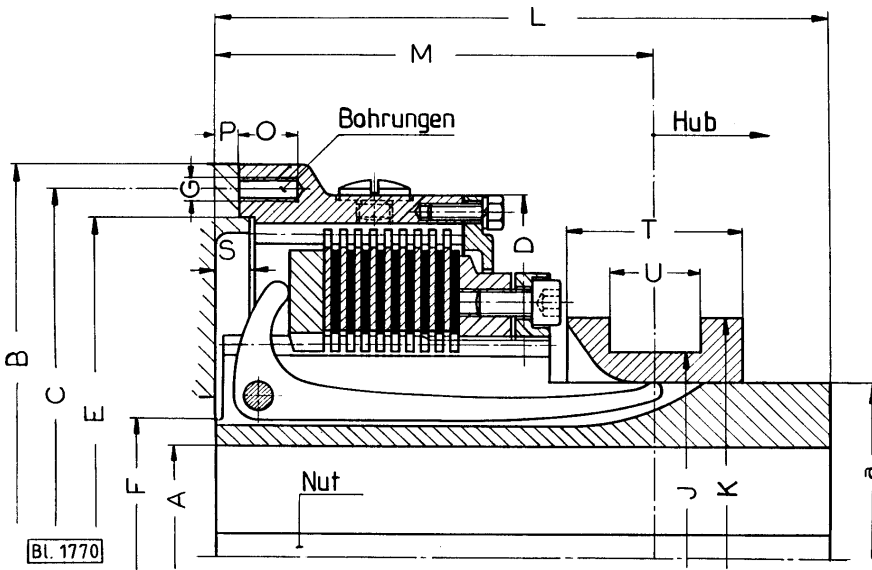
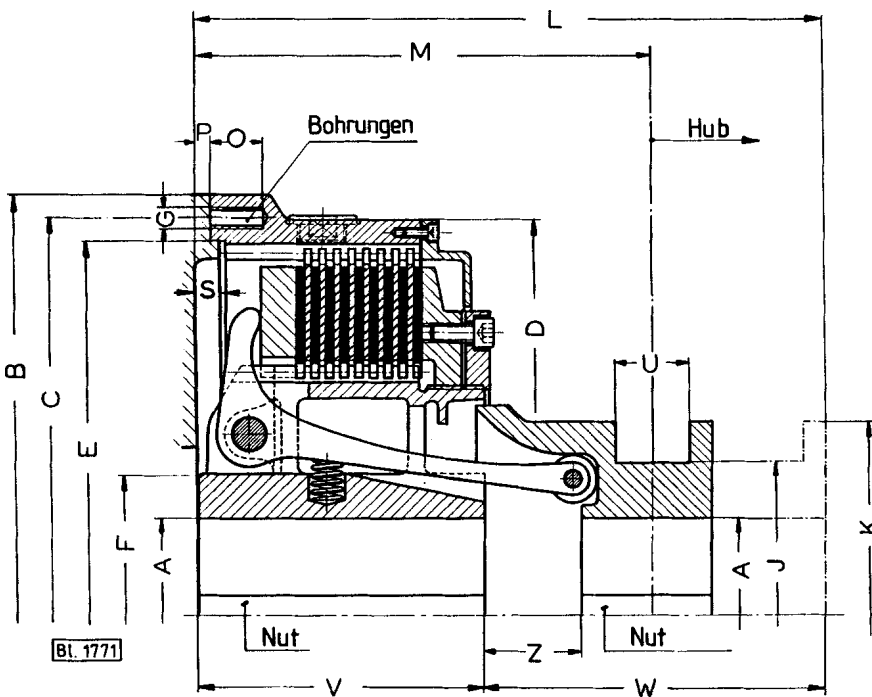


Figure 2



Bohrungen = Bores
Hub = Stroke
Nut = Keyway

Open version without case cover and locking screw and with peripheral bores available on request: series **0100-003**

**Mechanically actuated Sinus®-multi-plate clutches
with shoulder housing, closed version**



Series Figure Size	0100-002-Size-000000						
	1 47	1 55	1 63	2 69	2 75		
Mdyn	Nm						
	900	1400	2300	3600	5300		
J	internal	kgcm ²	588	1595	3713	6795	13323
	external	kgcm ²	683	1833	3975	9200	17650
Weight	approx.	kg	24,5	43	65	95	130
Engagement force (diseng. force approx. 50%)	approx.	N	400	700	900	1200	1700
ØA	prebored		28	46	46	70	70
Recommended bores ¹⁾	A max	H7	70	80	100	100	130
	Keyway	DIN 6885	20x4,9	22x5,4	28x6,4	28x6,4	32x7,4
	A	H7	65	60			
	Keyway	DIN 6885	18x4,4	18x4,4			
	A	H7	60				
	Keyway	DIN 6885	18x4,4				
	A	H7	55				
	Keyway	DIN 6885	16x4,3				
	A	H7	45				
	Keyway	DIN 6885	14x3,8				
Diameters	B		225	285	335	395	460
	C		205	260	310	365	430
	D		210	260	315	370	435
	EH7		195	245	295	345	410
	F max		80	100	120	125	175
	G		M8	M12	M12	M14	M14
	Number of bores		6	6	6	6	6
	J		120	145	175	145	175
	K		140	170	205	170	205
	a		102	120	153	-	-
Length dimensions	L		175	205	230	295	310
	M		125	148	160	232	235
	Stroke		25	30	35	40	50
	O		20	25	25	35	35
	P		5	10	10	10	10
	S		10	15	15	15	15
	T		50	55	70	-	-
	U		26	26	30	26	30
	V		-	-	-	145	165
	W		-	-	-	150	145
Z		-	-	-	35	20	

¹⁾ Bore diameters in bold print are available ex stock.

Clutches of size 55 and upwards with roller levers.
Clutches for higher torques on request.

Friction combinations

Standard version steel/steel for wet-running.
On request steel/sintered lining for wet- or
dry-running or steel/organic lining for dry-
running only. When using organic friction
linings, the plate chamber must be sealed to
prevent lubricants getting in.

Tolerances

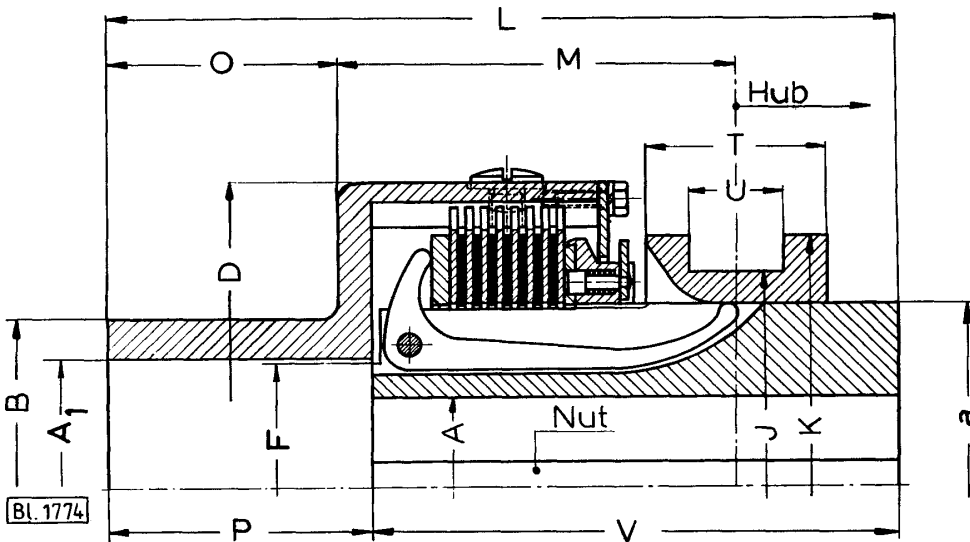
For bores and keyways see section 1
"Technical information"

Accessories

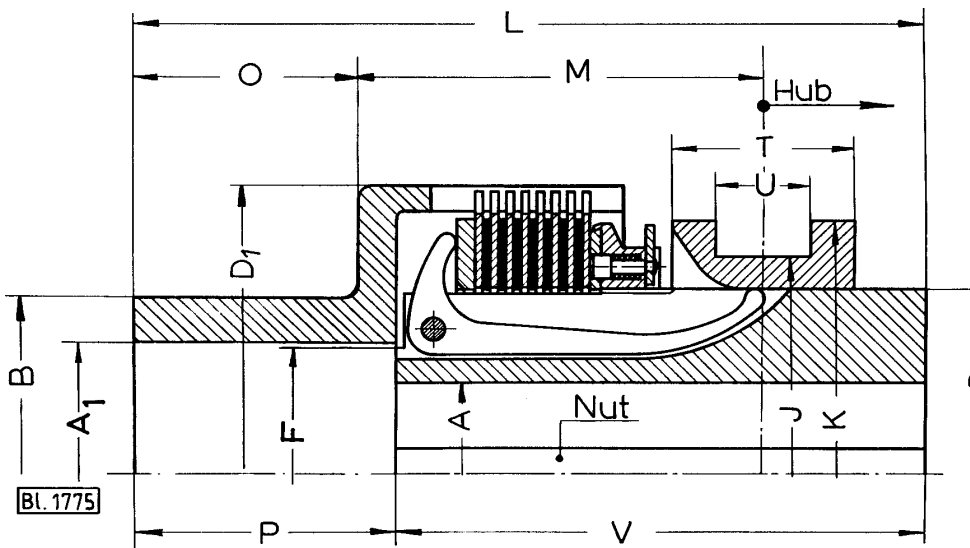
See pages 3a.23.00 and 3a.24.00

Version for connecting a shaft to a gear wheel or chain sprocket mounted on the hub.
The housing bore is suitable for plain or ball bearings.

Series **0100-004** closed version for open fitting



Series **0100-005** open version for fitting in gearboxes. Sizes 31, 39, 47 and 55 are in accordance with the figure for the closed version except that they do not have case cover and locking screw but do have peripheral bores.



Hub = Stroke
Nut = Keyway

Mechanically actuated Sinus®-multi-plate clutches with hub housing



Series Size-version			0100-00.-Size-...000									
			07-024	11-035	15-058	23-069	25-069	31-087	39-096	43-096	47-054	55-074
Mdyn	Nm		20	40	80	160	200	320	450	640	900	1400
J	internal	kgcm ²	2,5	10	25	43	45	78	270	358	588	1595
	0100-004 external	kgcm ²	2,5	18	25	68	95	148	380	635	875	2100
	0100-005 external	kgcm ²	2,5	10	15	40	58	108	290	408	875	2100
Weight	0100-004	approx. kg	1	2,7	3,8	6,6	7,2	9,2	20	24,5	31	52
	0100-005	approx. kg	1	2,4	3,4	6	6,5	8,5	18,5	22,5	31	52
Engagement force (diseng. force approx. 50%) approx. N			100	120	180	250	250	300	300	350	400	700
ØA	prebored		10	12	16	18	18	18	28	28	28	46
	ØA1 prebored		12	12	16	18	18	28	28	28	28	38
Recommended bores ¹⁾	A max	H7	15	22	32	45	45	48	60	70	70	80
	Keyway	DIN 6885	5x2,3	6x2,8	10x3,3	14x3,8	14x3,8	14x3,8	18x4,4	20x4,9	20x4,9	22x5,4
	A	H7		20	30	40	40	45	55	65	65	60
	Keyway	DIN 6885		6x2,8	8x3,3	12x3,3	12x3,3	14x3,8	16x4,3	18x4,4	18x4,4	18x4,4
	A	H7			28	35	35	40	50	55	60	
	Keyway	DIN 6885			8x3,3	10x3,3	10x3,3	12x3,3	14x3,8	16x4,3	18x4,4	
Diameters	B		35	60	75	90	90	100	120	120	130	150
	D	0100-004	70	90	100	125	135	150	170	195	210	260
	D1	0100-005	65	80	90	112	125	140	160	180	210	260
	F max		25	35	45	55	55	65	75	80	80	100
	J		45	60	70	85	85	85	120	120	120	145
Length dimensions	K		55	75	85	100	100	100	140	140	140	170
	a		35	50	60	72	72	72	102	102	102	120
	L		79	117	117	145	145	175	218	218	255	285
	M		40	64	64	77	77	83	113	113	140	163
	Stroke		9	10	11	12	12	16	20	20	25	30
Length dimensions	O		20	30	30	40	40	60	60	60	65	65
	P		24	36	36	50	50	70	73	73	80	80
	T		19	24	24	32	32	32	50	50	50	55
	U		10	10	10	15	15	15	26	26	26	26
	V		55	81	81	95	95	105	145	145	175	205

¹⁾ Bore diameters in bold print are available ex stock.

Clutches of size 55 and upwards with roller levers.

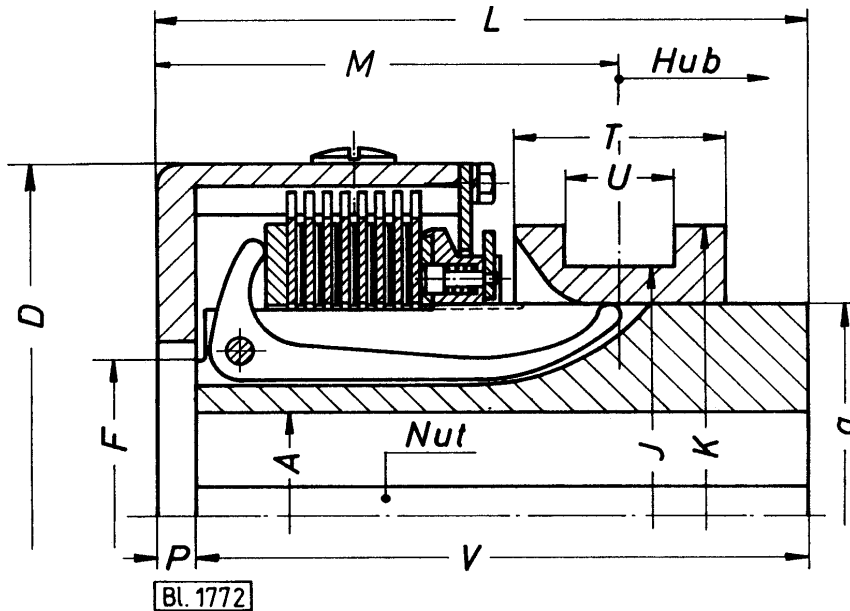
Friction combinations

Standard version steel/steel for wet-running. On request steel/sintered lining for wet- or dry-running or steel/organic lining for dry-running only. When using organic friction linings, the plate chamber must be sealed to prevent lubricants getting in.

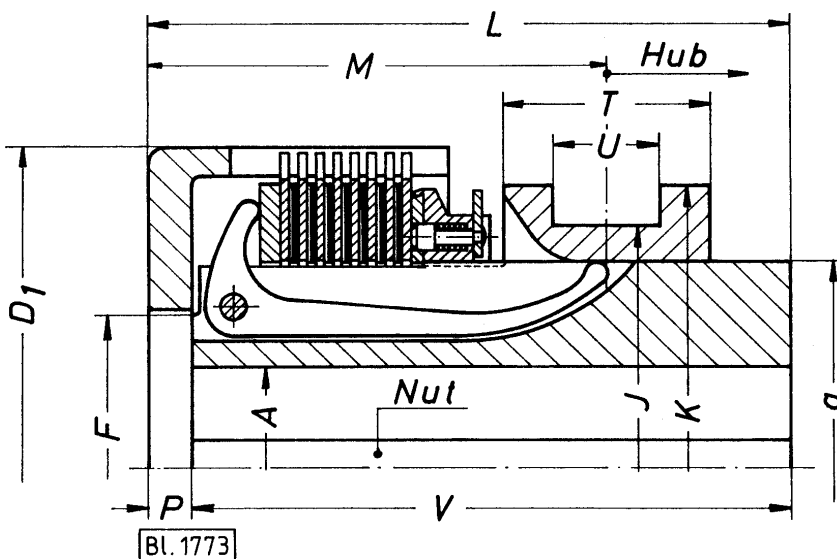
Tolerances For bores and keyways see section 1 "Technical information"

Accessories See pages 3a.23.00 and 3a.24.00

Series **0100-006** closed version for open fitting



Series **0100-005** open version for fitting in gearboxes. Sizes 31, 39, 47 and 55 are in accordance with the figure for the closed version except that they do not have case cover and locking screw but do have peripheral bores.



Hub = Stroke
Nut = Keyway

Mechanically actuated Sinus®-multi-plate clutches with cup housing



Series Size			0100-00.-Size-000000									
			07	11	15	23	25	31	39	43	47	55
Mdyn	Nm		20	40	80	160	200	320	450	640	900	1400
J	internal	kgcm ²	2,5	10	25	43	45	78	270	358	588	1595
	0100-006 external	kgcm ²	2,5	18	23	63	88	135	315	570	775	1925
	0100-007 external	kgcm ²	2,5	10	13	40	50	95	225	343	775	1925
Weight	0100-006	approx. kg	0,95	2,5	3,6	6,2	6,6	8,4	18	22,5	28,5	48
	0100-007	approx. kg	0,95	2,2	3,2	5,6	5,9	7,7	16,5	20,5	28,5	48
Engagement force (diseng. force approx. 50%) approx. N			100	120	180	250	250	300	300	350	400	700
ØA	prebored		10	12	16	18	18	18	28	28	28	46
Recommended bores ¹⁾	A max	H7	15	22	32	45	45	48	60	70	70	80
	Keyway	DIN 6885	5x2,3	6x2,8	10x3,3	14x3,8	14x3,8	14x3,8	18x4,4	20x4,9	20x4,9	22x5,4
	A	H7		20	30	40	40	45	55	65	65	60
	Keyway	DIN 6885		6x2,8	8x3,3	12x3,3	12x3,3	14x3,8	16x4,3	18x4,4	18x4,4	18x4,4
	A	H7			28	35	35	40	50	55	60	
	Keyway	DIN 6885			8x3,3	10x3,3	10x3,3	12x3,3	14x3,8	16x4,3	18x4,4	
	A	H7			24	30	30	38	45	50	55	
	Keyway	DIN 6885			8x3,3	8x3,3	8x3,3	10x3,3	14x3,8	14x3,8	16x4,3	
	A	H7			22	25	25	30	40	45	45	
	Keyway	DIN 6885			6x2,8	8x3,3	8x3,3	8x3,3	12x3,3	14x3,8	14x3,8	
Diameters	D	0100-006	70	90	100	125	135	150	170	195	210	260
	D ₁	0100-007	65	80	90	112	125	140	160	180	210	260
	F max		25	35	45	55	55	65	75	80	80	100
	J		45	60	70	85	85	85	120	120	120	145
	K		55	75	85	100	100	100	140	140	140	170
	a		35	50	60	72	72	72	102	102	102	120
Length dimensions	L		59	87	87	105	105	115	158	158	190	220
	M		40	64	64	77	77	83	113	113	140	163
	Stroke		9	10	11	12	12	16	20	20	25	30
	P		4	6	6	10	10	10	13	13	15	15
	T		19	24	24	32	32	32	50	50	50	55
	U		10	10	10	15	15	15	26	26	26	26
	V		55	81	81	95	95	105	145	145	175	205

¹⁾ Bore diameters in bold print are available ex stock.

Clutches of size 55 and upwards with roller levers.

Friction

combinations Standard version steel/steel for wet-running. On request steel/sintered lining for wet- or dry-running or steel/organic lining for dry-running only. When using organic friction linings, the plate chamber must be sealed to prevent lubricants getting in.

Tolerances For bores and keyways see section 1 "Technical information"

Accessories See pages 3a.23.00 and 3a.24.00

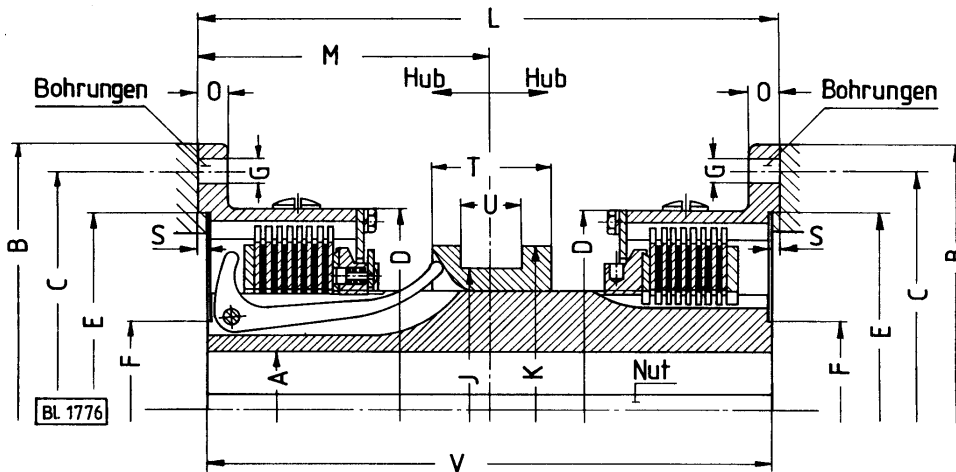


Figure 1

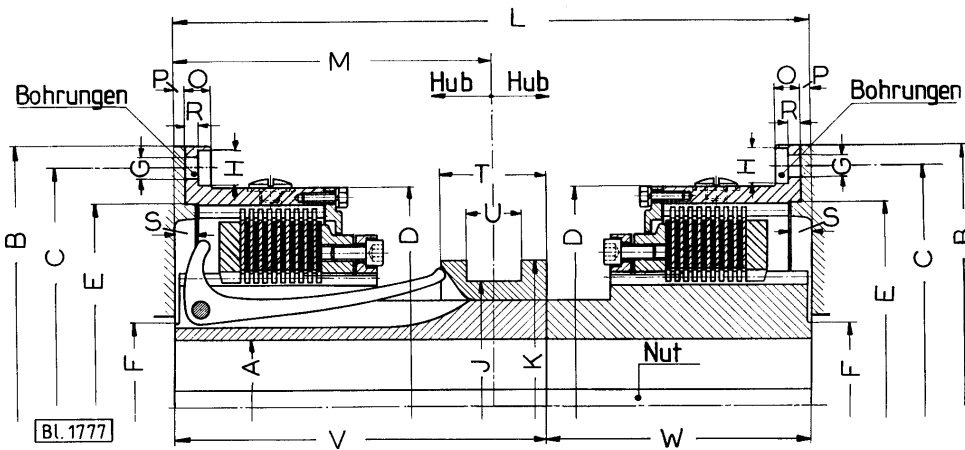


Figure 2

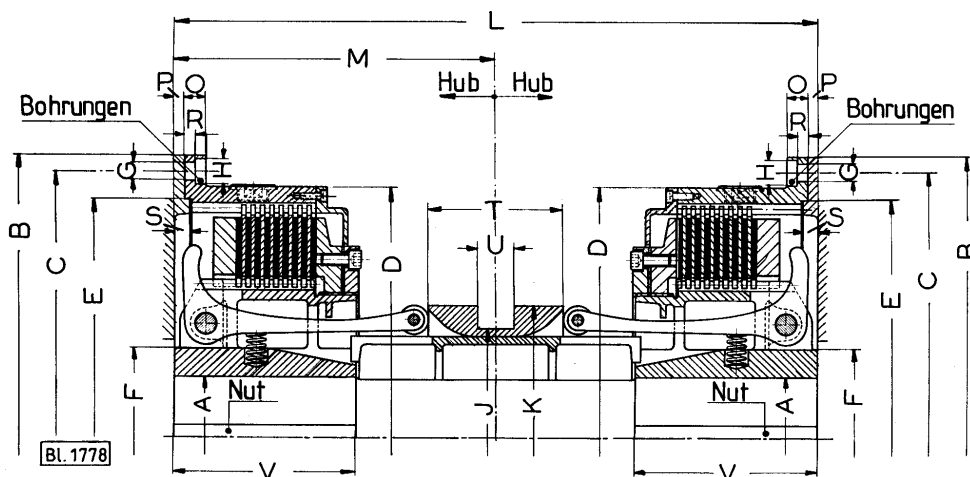


Figure 3

Bohrungen = Bores
Hub = Stroke
Nut = Keyway

Open version without case cover and locking screw but with peripheral bores available on request: series **0300-001**

**Mechanically actuated
Sinus®-multi-plate double clutches
with flange housings, closed version**

Series Figure Size	0300-000-Size-000000														
	1 07	1 11	1 15	1 23	1 25	1 31	1 39	2 43	2 47	2 55	2 63	3 69	3 75		
Mdyn	Nm		20	40	80	160	200	320	450	640	900	1400	2300	3600	5300
J	internal	kgcm ²	5	15	40	68	73	133	425	600	1075	2950	6700	13750	27250
	external	kgcm ²	10	50	95	205	230	375	825	1275	1475	3975	8600	20000	38250
Weight	approx. kg		1,6	4,3	6,3	10,4	11,2	15	28,5	37	44,5	79	117	188	255
Engagement force (diseng. force approx. 50%)	approx. N		100	120	180	250	250	300	300	350	400	700	900	1200	1700
ØA	prebored		12	12	16	18	18	18	28	28	28	46	46	70	70
A max Keyway	H7		15	22	32	45	45	48	60	68	70	80	100	100	130
			3x	4x	6x	10x	10x	10x	14x	18x	18x	22x	22x	28x	28x
A Keyway	H7		1,4	1,8	1,6	3,3	3,3	3,3	3,8	4,4	4,4	5,4	5,4	6,4	7,4
			20	30	38	38	45	50		60					
Recommended bores ¹⁾	H7			4x	8x	10x	10x	12x	14x		18x				
			1,4	3,3	3,3	3,3	3,3	3,3	3,8		4,4				
A Keyway	H7			28	35	35	40	45							
				8x	10x	10x	12x	14x							
A Keyway	H7			3,3	3,3	3,3	3,3	3,8							
				25	32	32									
A Keyway	H7			8x	10x	10x									
				3,3	3,3	3,3									
A Keyway	H7			22	30	30									
				6x	8x	8x									
				2,8	3,3	3,3									
Keyway to DIN 6885 up to Ø			10	12	28	38	38	42	50	65	65	80	85	DIN	6885
Diameters	B		95	130	145	180	180	195	225	240	250	310	370	430	500
	C		82	110	125	155	155	175	200	215	230	285	340	400	470
	D		70	90	100	125	135	150	170	195	210	260	315	370	435
	E H7		55	90	90	125	125	140	170	185	195	245	295	345	410
	F max		25	35	45	55	55	65	75	80	80	100	120	125	175
	G		7	10,5	10,5	10,5	10,5	10,5	10,5	10,5	10,5	13	15	17	17
	H		-	-	-	-	-	-	-	-	17	19,5	23,5	25,5	25,5
	Number of bores		3	4	4	4	4	4	6	6	6	6	6	6	6
	J		45	60	70	85	85	85	120	120	120	145	175	175	215
	K		55	75	85	100	100	100	140	140	140	170	205	205	245
Length dimensions	L		92	141	141	164	164	184	244	251	300	355	390	495	520
	M		46	70,5	70,5	82	82	92	122	125,5	150	177,5	195	247,5	260
	Stroke		9	10	11	12	12	16	20	22	25	30	35	42,5	50
	O		4	6	6	10	10	10	12	12	12	15	15	20	20
	P		-	-	-	-	-	-	-	-	5	10	10	10	10
	R		-	-	-	-	-	-	-	-	6	7,5	7,5	10	10
	S		1	2	2	3	3	3	3	3	10	15	15	15	15
	T		18	24	24	32	32	32	50	50	50	55	70	85	110
	U		10	10	10	15	15	15	26	26	26	26	30	30	35
	V		90	137	137	158	158	105	238	145	175	205	230	145	165
	W		-	-	-	-	-	73 ²⁾	-	100	125	150	160	-	-

1) Bore diameters in bold print are available ex stock.

2) Hub divided!

Dimensions V + W = overall length of hub (as in Fig. 2).

Clutches of size 55 and upwards with roller levers.

Clutches for higher torques on request.

Friction

combinations Standard version steel/steel for wet-running.
On request steel/sintered lining for wet- or dry-running or steel/organic lining for dry-running only. When using organic friction linings, the plate chamber must be sealed to prevent lubricants getting in.

Tolerances For bores and keyways see section 1 "Technical information"

Accessories See pages 3a.23.00 and 3a.24.00

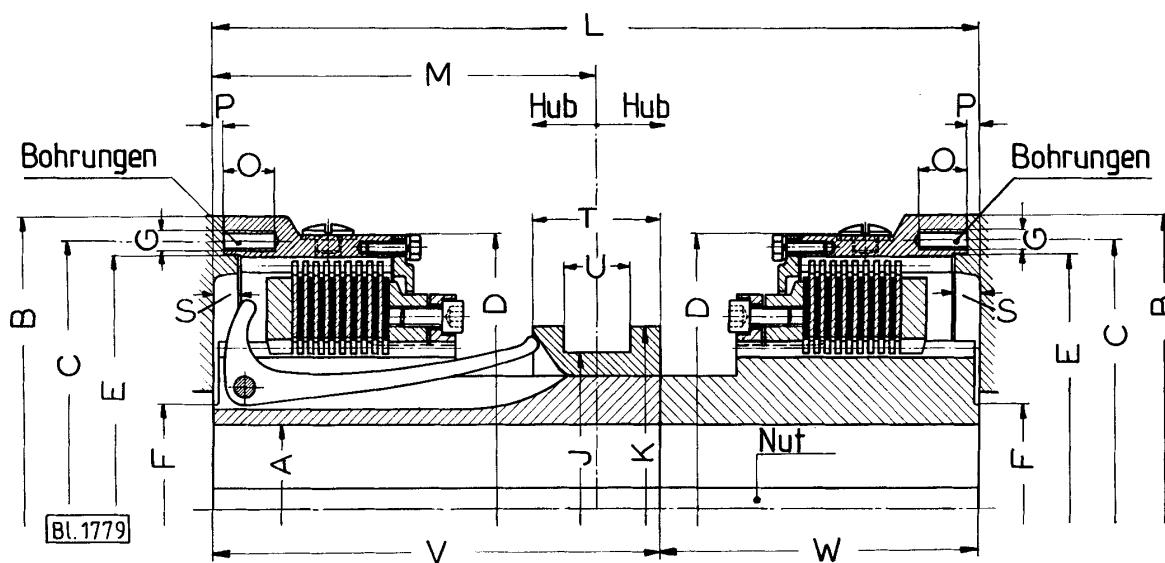


Figure 1

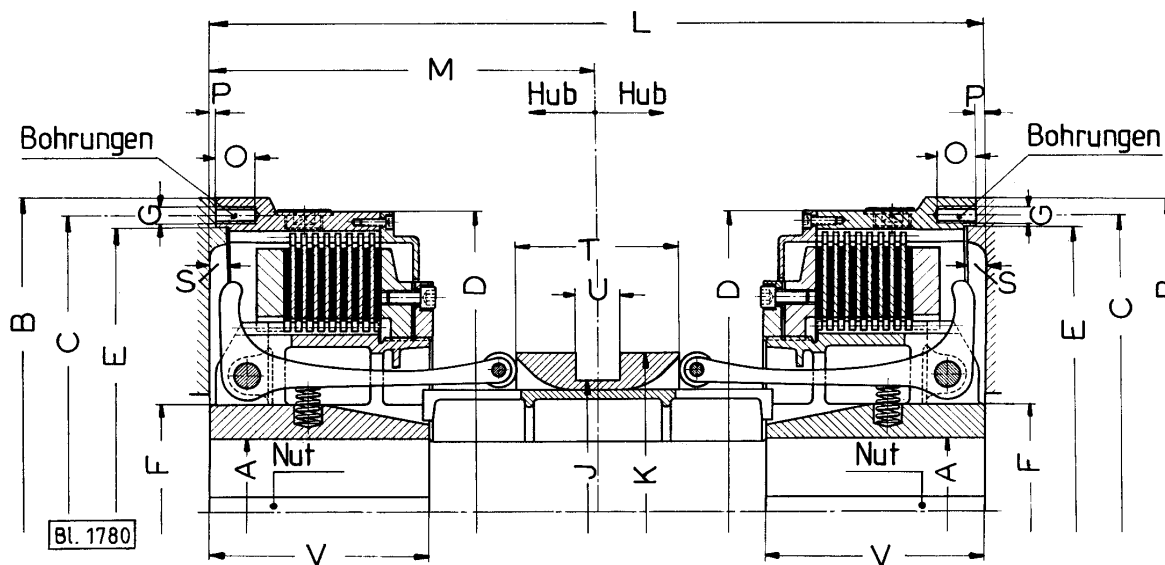


Figure 2

Bohrungen = Bores
Hub = Stroke
Nut = Keyway

Open version without case cover and locking screw but with peripheral bores available on request: series **0300-003**

**Mechanically actuated
Sinus®-multi-plate double clutches
with shoulder housings, closed version**



Series Figure Size	0300-002-Size-000000						
	1 47	1 55	1 63	2 69	2 75		
Mdyn	Nm		900	1400	2300	3600	5300
J	internal	kgm ²	0,108	0,295	0,67	1,375	2,725
	external	kgm ²	0,138	0,368	0,795	1,85	3,525
Weight	approx. kg		44,5	79	117	188	255
Engagement force (diseng. force approx. 50%)	approx. N		400	700	900	1200	1700
ØA	prebored		28	46	46	70	70
Recommended bores ¹⁾	A max	H7	70	80	100	100	130
	Keyway	DIN 6885	18x4,4	22x5,4	22x5,4	28x6,4	32x7,4
Diameters	A	H7	60				
	Keyway	DIN 6885	18x4,4				
	B		225	285	335	395	460
	C		205	260	310	365	430
	D		210	260	315	370	435
	EH7		195	245	295	345	410
	F max		80	100	120	125	175
	G		M8	M12	M12	M14	M14
	Number of bores		6	6	6	6	6
	J		120	145	175	175	215
K		140	170	205	205	245	
Length dimensions	L		300	355	390	495	520
	M		150	177,5	195	247,5	260
	Stroke		25	30	35	42,5	50
	O		20	25	25	35	35
	P		5	10	10	10	10
	S		10	15	15	15	15
	T		50	55	70	85	110
	U		26	26	30	30	35
	V		175	205	230	145	165
	W		125	150	160	-	-

¹⁾ Bore diameters in bold print are available ex stock.

Clutches of size 55 and upwards with roller levers.
Clutches for higher torques on request.

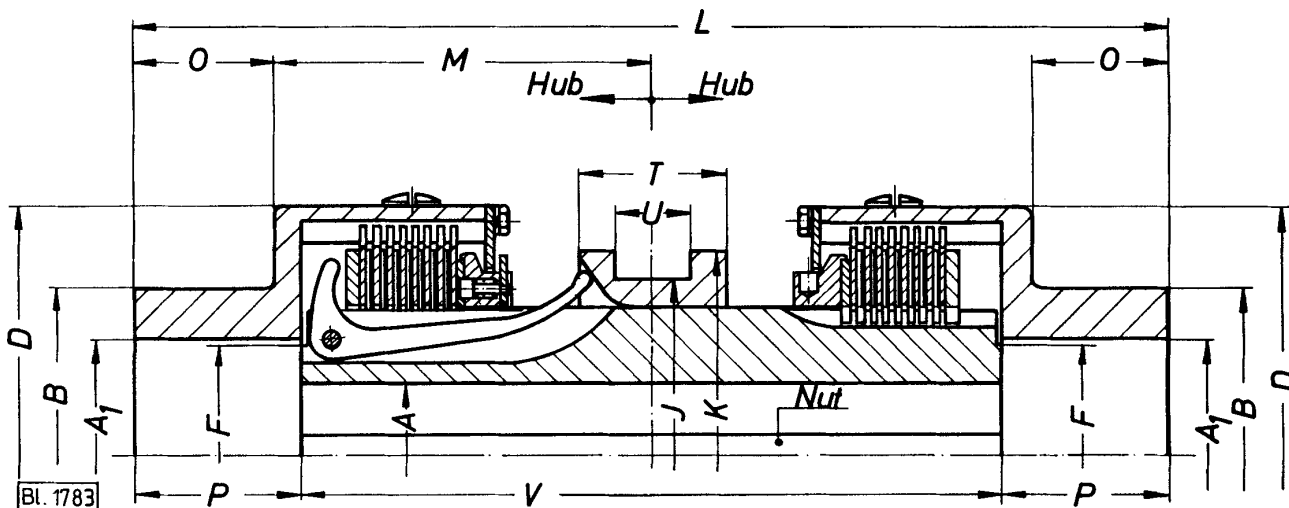
Friction

combinations Standard version steel/steel for wet-running.
On request steel/sintered lining for wet- or dry-running or steel/organic lining for dry-running only. When using organic friction linings, the plate chamber must be sealed to prevent lubricants getting in.

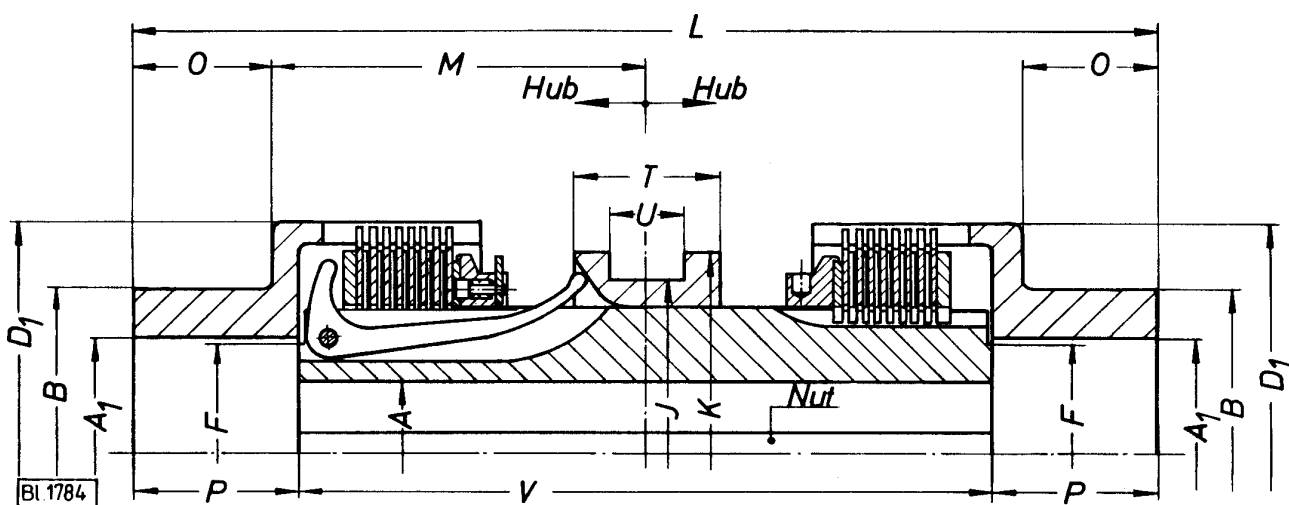
Tolerances For bores and keyways see section 1 "Technical information"

Accessories See pages 3a.23.00 and 3a.24.00

Series **0300-004** closed version for open fitting



Series **0300-005** open version for fitting in gearboxes. Sizes 31, 39, 47 and 55 are in accordance with the figure for the closed version except that they do not have case cover and locking screw but do have peripheral bores.



Hub = Stroke
Nut = Keyway

**Mechanically actuated
Sinus®-multi-plate double clutches
with hub housings**

Series Size-version			0300-00.-Size-...000									
			07-024	11-035	15-058	23-069	25-069	31-087	39-096	43-096	47-054	55-074
Mdyn	Nm		20	40	80	160	200	320	450	640	900	1400
J	internal	kgcm ²	5	15	40	68	73	133	425	600	1075	2950
	0300-004 external	kgcm ²	5	35	50	135	200	300	750	1275	1750	4250
	0300-005 external	kgcm ²	5	20	30	80	115	225	575	825	1750	4250
Weight	0300-004	approx. kg	1,8	4,7	6,7	11,5	13	16,5	35,5	45	57	97
	0300-005	approx. kg	1,8	4,1	6	10,4	11,5	15	32,5	41	57	97
Engagement force (diseng. force approx. 50%) approx. N			100	120	180	250	250	300	300	350	400	700
ØA	prebored		10	12	16	18	18	18	28	28	28	46
	ØA1	prebored	12	12	16	18	18	28	28	28	28	38
Recommended bores ¹⁾	A max	H7	15	22	32	45	45	48	60	68	70	80
	Keyway		3x1,4	4x1,8	6x1,6	10x3,3	10x3,3	10x3,3	14x3,8	18x4,4	18x4,4	22x5,4
	A	H7		20	30	38	38	45	50		60	
	Keyway			4x1,4	8x3,3	10x3,3	10x3,3	10x3,3	12x3,3	14x3,8		18x4,4
	A	H7			28	35	35	40	45			
	Keyway				8x3,3	10x3,3	10x3,3	12x3,3	14x3,8			
Keyway to DIN 6885 up to Ø	A	H7		25	32	32						
	Keyway			8x3,3	10x3,3	10x3,3						
	A	H7		22	30	30						
Keyway			6x2,8	8x3,3	8x3,3							
Diameters	B		35	60	75	90	90	100	120	120	130	150
	D	0300-004	70	90	100	125	135	150	170	195	210	260
	D1	0300-005	65	80	90	112	125	140	160	180	210	260
	F max		25	35	45	55	55	65	75	80	80	100
	J		45	60	70	85	85	85	120	120	120	145
	K		55	75	85	100	100	100	140	140	140	170
Length dimensions	L		138	209	209	258	258	318	384	391	460	515
	M		49	74,5	74,5	89	89	99	132	135,5	165	192,5
	Stroke		9	10	11	12	12	16	20	22	25	30
	O		20	30	30	40	40	60	60	60	65	65
	P		24	36	36	50	50	70	73	73	80	80
	T		18	24	24	32	32	32	50	50	50	55
	U		10	10	10	15	15	15	26	26	26	26
	V		90	137	137	158	158	178 ²⁾	238	245 ²⁾	300 ²⁾	355 ²⁾
2) Hub divided into the following partial lengths			-	-	-	-	-	105 + 73	-	145 + 100	175 + 125	205 + 150

¹⁾ Bore diameters in bold print are available ex stock.

Clutches of size 55 and upwards with roller levers.

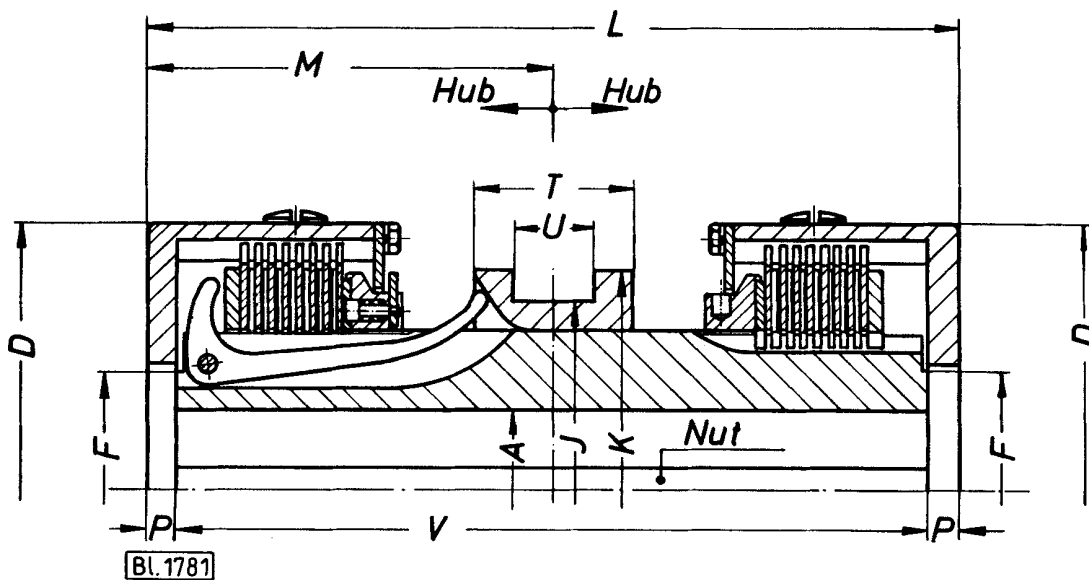
Friction

combinations Standard version steel/steel for wet-running. On request steel/sintered lining for wet- or dry-running or steel/organic lining for dry-running only. When using organic friction linings, the plate chamber must be sealed to prevent lubricants getting in.

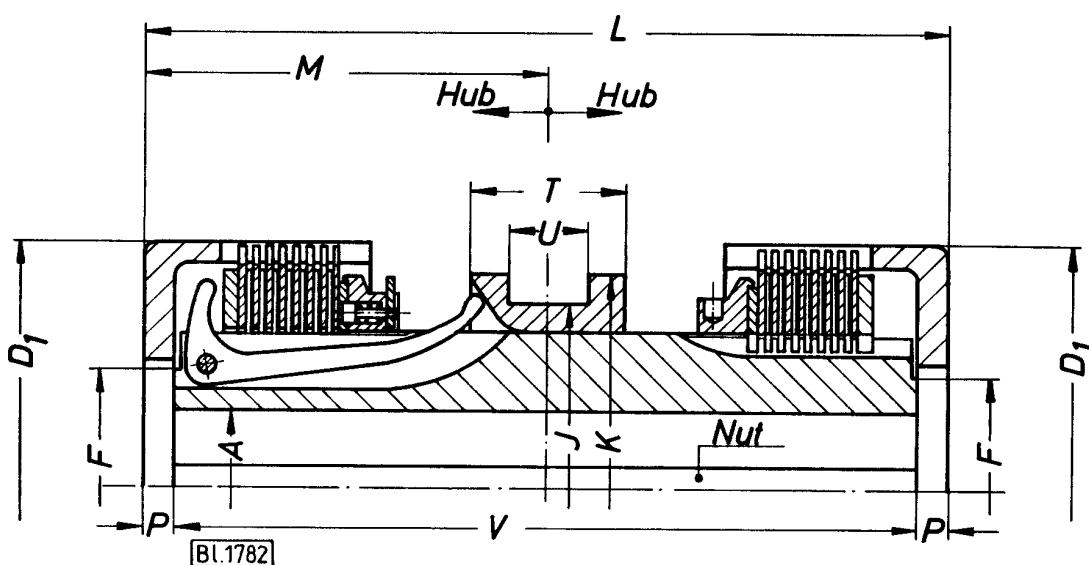
Tolerances For bores and keyways see section 1 "Technical information"

Accessories See pages 3a.23.00 and 3a.24.00

Series **0300-006** closed version for open fitting



Series **0300-007** open version for fitting in gearboxes. Sizes 31, 39, 47 and 55 are in accordance with the figure for the closed version except that they do not have case cover and locking screw but do have peripheral bores.



Hub = Stroke
Nut = Keyway

**Mechanically actuated
Sinus®-multi-plate double clutches
with cup housing**



Series Size			0300-00.-Size-000000											
			07	11	15	23	25	31	39	43	47	55		
Mdyn	Nm		20	40	80	160	200	320	450	640	900	1400		
J	internal	kgcm ²	5	15	40	68	73	133	425	600	1075	2950		
	0300-006 external	kgcm ²	5	33	48	125	183	275	625	1150	1575	3900		
	0300-007 external	kgcm ²	5	18	28	70	98	200	450	700	1575	3900		
Weight	0300-006	approx. kg	1,7	4,3	6,3	10,7	11,8	14,9	31,5	41	52	89		
	0300-007	approx. kg	1,7	3,7	5,6	9,6	10,3	13,4	28,5	37	52	89		
Engagement force (diseng. force approx. 50%)			approx. N		100	120	180	250	250	300	300	350	400	700
ØA	prebored		12	12	16	18	18	18	28	28	28	46		
A max	Keyway	H7	15	22	32	45	45	48	60	68	70	80		
			3x1,4	4x1,8	6x1,6	10x3,3	10x3,3	10x3,3	14x3,8	18x4,4	18x4,4	22x5,4		
Recommended bores ¹⁾	Keyway	H7	20	30	38	38	45	50			60			
			4x1,4	8x3,3	10x3,3	10x3,3	12x3,3	14x3,8		18x4,4				
A	Keyway	H7	28	35	35	40	45							
			8x3,3	10x3,3	10x3,3	12x3,3	14x3,8							
A	Keyway	H7	25	32	32									
			8x3,3	10x3,3	10x3,3									
A	Keyway	H7	22	30	30									
			6x2,8	8x3,3	8x3,3									
Keyway to DIN 6885 up to Ø			10	12	28	38	38	42	50	65	65	80		
Diameters	D	0300-006	70	90	100	125	135	150	170	195	210	260		
	D ₁	0300-007	65	80	90	112	125	140	160	180	210	260		
	F max		25	35	45	55	55	65	75	80	80	100		
	J		45	60	70	85	85	85	120	120	120	145		
	K		55	75	85	100	100	100	140	140	140	170		
Length dimensions	L		98	149	149	178	178	198	264	271	330	385		
	M		49	74,5	74,5	89	89	99	132	135,5	165	192,5		
	Stroke		9	10	11	12	12	16	20	22	25	30		
	P		4	6	6	10	10	10	13	13	15	15		
	T		18	24	24	32	32	32	50	50	50	55		
	U		10	10	10	15	15	15	26	26	26	26		
V		90	137	137	158	158	178 ²⁾	238	245 ²⁾	300 ²⁾	355 ²⁾			
2) Hub divided into the following partial lengths			-	-	-	-	-	105 + 73	-	145 + 100	175 + 125	205 + 150		

1) Bore diameters in bold print are available ex stock.

Clutches of size 55 and upwards with roller levers.

Friction

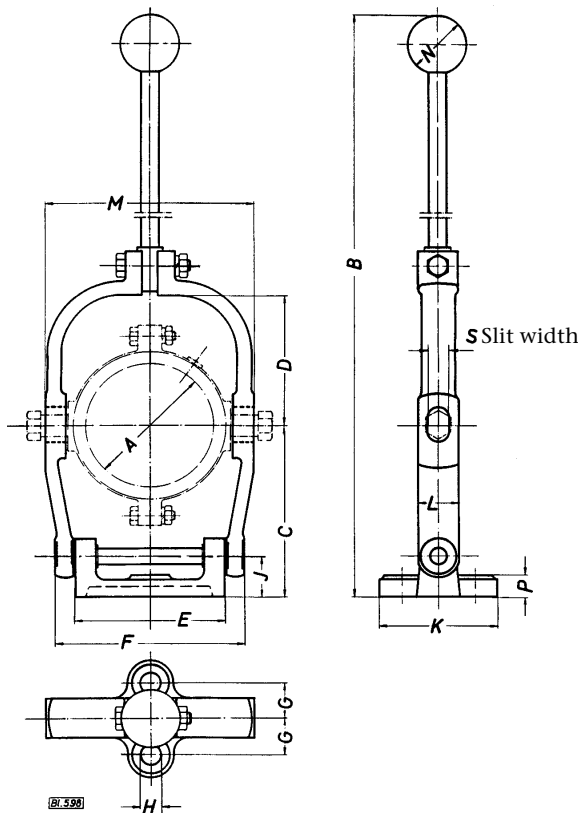
combinations Standard version steel/steel for wet-running. On request steel/sintered lining for wet- or dry-running or steel/organic lining for dry-running only. When using organic friction linings, the plate chamber must be sealed to prevent lubricants getting in.

Tolerances For bores and keyways see section 1 "Technical information"

Accessories See pages 3a.23.00 and 3a.24.00

Striker forks 0186-001-Size-000000

for actuator rings 0186-003 on page 3a.24.00



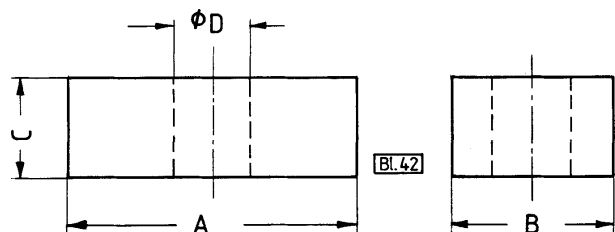
Size	Weight kg	Striker forks 0186-001-Size-000000														Clutch size		
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	S	Series 0100	Series 0300
11	2	60,5	410	95	88	100	126	25	14	28	82	30	115	40	16	10,5	11	11
15	2	70,5	410	95	88	100	126	25	14	26	82	30	126	40	16	10,5	15	15
31	2,1	85,5	435	120	90	100	126	25	14	28	82	30	140	40	16	15,5	23, 25, 31	23, 25, 31
47	6,1	120,8	550	173	132	155	190	42,5	17	62	125	40	202	50	23	20,5	39, 43, 47	39, 43, 47
55	7,1	145,8	560	173	150	155	190	42,5	17	62	125	50	230	50	23	20,5	55, 69	55
63	9,8	176	630	202	182	226	268	50	20	64	150	50	270	50	25	20,5	63, 75	63, 69

Engagement forces acting on sliding sleeve													
Clutch size	07	11	15	23	25	31	39	43	47	55	63	69	75
Engagement force approx. N	100	120	180	250	250	300	300	350	400	700	900	1200	1700
Diseng. force	approx. 50% of the engagement force Data given are approximate and may vary with the operating conditions (e.g. speed)												

Sliding blocks

0186-004-Size-000000 of bronze
0186-004-Size-001000 of steel

Size	A	B	C	D	Clutch size	
					Series 0100	Series 0300
07	30	10	8	6	07 - 15	07 - 15
23	30	15	10	9	23 - 31	23 - 31
39	40	26	16	12	39 - 55, 69	39 - 55
63	60	30	18	15	63, 75	63, 69



Actuator rings 0186-003-Size-00.000 with screwed-in journals

for striker forks 0186-001 on page 3a.23.00

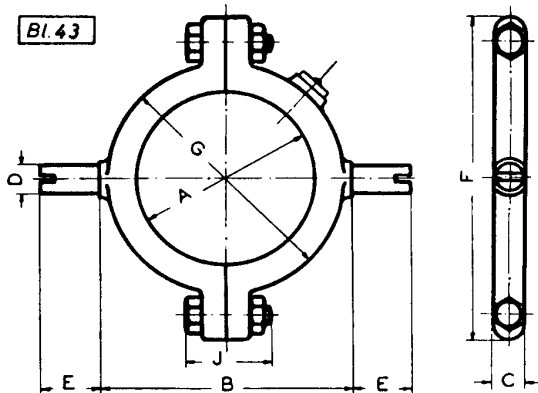


Fig. 1

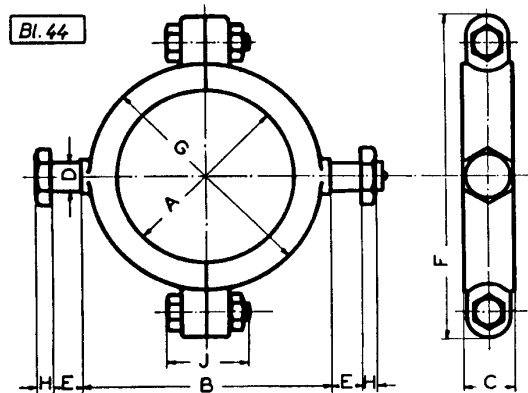


Fig. 2

Actuator rings 0186-003-Size-0..000 with integrally cast journals

for striker forks 0186-001 on page 3a.23.00

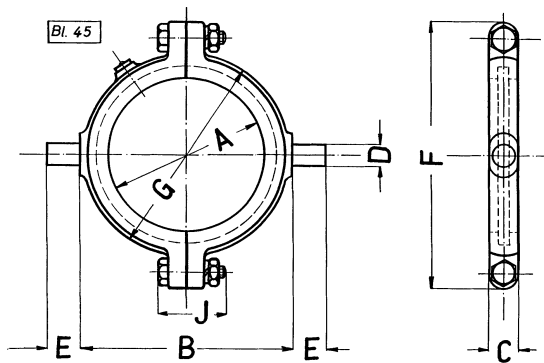


Fig. 3

Fig.	Order No.	Material	Actuator ring 0186-003-Size-0..000										Clutch size	
			Weight approx.kg	A	B	C	D	E	F	G	H	J	Series 0100	Series 0300
1	0186-003-11-001000	Steel	0,28	60,5	85	10	10	20	108	80	-	29	11	11
	0186-003-15-001000	Steel	0,3	70,5	95	10	10	20	119	90	-	29	15	15
2	0186-003-31-003000	Brass	0,5	85,5	110	15	15	20	138	105	7	31	23, 25, 31	23, 25, 31
	0186-003-31-001000	Steel												
	0186-003-47-000000	Bronze GCI	1,4	120,8	154	26	20	25	192	145	11	54	39, 43, 47	39, 43, 47
	0186-003-47-002000													
	0186-003-55-000000	Bronze GCI	1,7	145,8	185	26	20	25	235	175	11	54	55, 69	55
	0186-003-55-002000													
0186-003-63-000000	Bronze GCI	2,5	176	225	30	20	25	260	210	11	54	63, 75	63, 69	
0186-003-63-002000														
0186-003-75-000000	Bronze GCI	3,7	216	265	35	25	30	305	255	11	56	-	75	
0186-003-75-002000														
3	0186-003-07-023000	Brass	0,07	45,5	65	10	10	8	92	63	-	25	07	07
	0186-003-11-023000	Brass	0,28	60,5	85	10	10	15	114	83	-	29	11	11
	0186-003-15-023000	Brass	0,3	70,5	95	10	10	15	122	93	-	29	15	15
	0186-003-31-023000	Brass	0,5	85,5	110	15	15	15	138	108	-	31	23, 25, 31	23, 25, 31
	0186-003-47-020000	Bronze GCI	1,4	120,8	154	26	20	25	192	145	-	54	39, 43, 47	39, 43, 47
	0186-003-47-022000													
0186-003-55-020000	Bronze GCI	1,7	145,8	185	26	20	25	235	175	-	54	55, 69	55	
0186-003-55-022000														
0186-003-63-020000	Bronze GCI	2,5	176	225	30	20	25	260	210	-	54	63, 75	63, 69	
0186-003-63-022000														