# Clutches, brakes and clutch/brake combined units

## Properties,areas of application

Clutches and brakes in both single and double-plate versions permit high switching frequencies and high thermal loading. Multi-plate versions, on the other hand, provide a favourable torque size ratio, but their permitted thermal loads are lower than for the single and double-plate versions. Pneumatically actuated clutches with spring-applied brakes can be supplied as a combined unit in a single-plate version. This unit, which was developed in particular for presses and guillotines, is capable of being fitted between flywheel and machine body in a very small space.

## Operation

With pneumatic clutches, the axial thrust for building up the torque is transmitted by a piston running in a cylinder. When the cylinder space is depressurised, the springs push back the piston to its starting position.

With spring-applied brakes, the axial thrust required for building up the torque is generated by springs. The brake is released by applying the appropriate pneumatic pressure to the piston. In the combined units, the frictional connection is produced on the clutch side with air pressure and on the brake side with spring pressure. The number of springs and thereby the spring pressure can be selected in accordance with the level of torque required.

## Installation

### Temperature

To prevent seal damage the temperature of the clutch cylinder should not exceed 80-100 °C during continuous operation .

### Tolerances

When the compressed air is fed in through the shaft, care must be taken that the recommended tolerances (H6/H7) are maintained and that there is suitable shaft sealing in order to prevent loss of air.

### Compressed air, feeding of compressed air

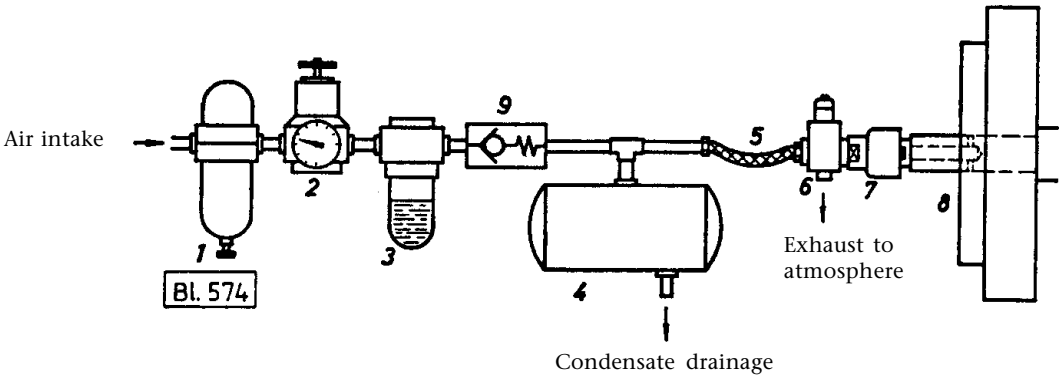
Important: Use only filtered air!

The oil (**3**) (see figure on page 6.04.00) must be set in such a way that between 1 and 3 (maximum) drops of oil are added per $m^3$ air. If precise response times are to be achieved, pipes must be kept short and quick-exhaust valves with large port diameters should be used. The valve should be positioned as close as possible to the air inlet (for details of rotary inlets for compressed air see page 6.57.00). For systems requiring short response times (presses etc.), pipe diameters, as suggested in the following table, are required:

| Nominal width of the pipes and valves in inches | | 1/2<br>1/4 only with n >1500 min$^{-1}$ | 1/2 | 3/4 | 1 | 1 1/2 | 2 |
|---|---|---|---|---|---|---|---|
| **Series** | | | | | | | |
| **0406** | Size | 29 | 40, 50 | 61 | 71 to 79 | 82, 90 | |
| **0420** | Size | 23, 29 | 40, 50 | 61 to 67 | 72 to 80 | 83, 87 | 90 to 93 |

## Compressed air supply

**Schematic of a compressed air system:**




**1** = Compressed air filter
**2** = Pressure reducing valve
**3** = Oiler
**4** = Pressure compensating reservoir
**5** = Flexible metal hose
**6** = Solenoid-operated three-way or press safety valve
**7** = Air inlet
**8** = Clutch or brake or combined unit
**9** = Non-return valve

### Amount of compressed air required

If no compressed air line is available, the size of the compressor must be determined from the air consumption of the clutch.
The volume of the pipes up to the valve must be added to the volume of the cylinder. The air consumption of the clutch is then:

Q = $1.5 \cdot V \cdot p \cdot z$ [l/min]
= quantity of air drawn in from the compressor
V = cylinder volume + volume of lines between clutch and valve [l]
p = maximum operating pressure [bar]
z = maximum number of engagements per minute
1,5 = factor for leakage losses (depends on particular operating conditions).

The greater the number of clutches that will be engaged at the same time, the higher will be the amount of air required.
In particular for applications where **engagement frequencies will be high**, for example, presses, a **pressure-compensating reservoir** of a size appropriate for the size of the clutch should be fitted upstream of the valve, to ensure that there will be sufficient compressed air available during the engagement process. The air pressure, as measured directly upstream of the clutch, should not fall below 90 % of the operating pressure during the engagement processes.
Guideline value for the volume of the pressure compensating reservoir: $V_{Dr}$ = 15 to 20 · V

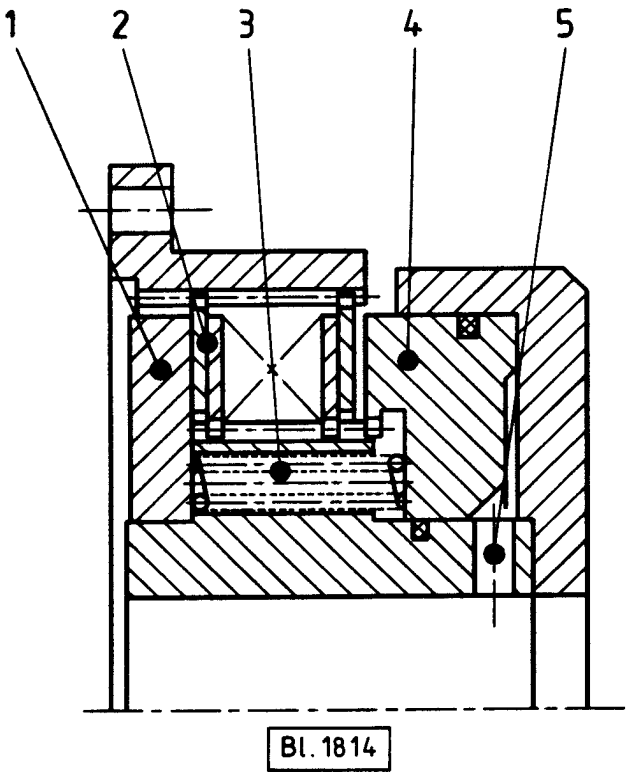
## Circuit with clutch and brake

### Overlap prevention

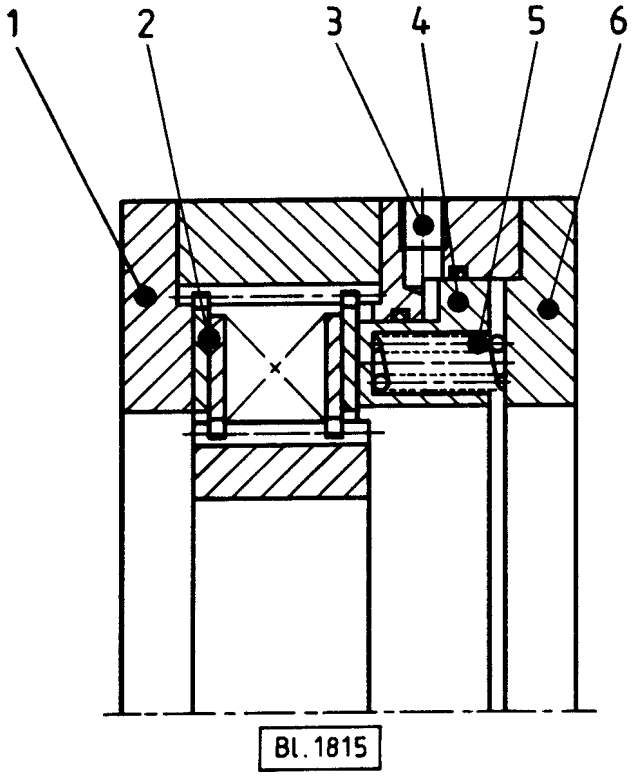
Where a separate clutch is fitted with a separate brake, in one transmission line, and where both units will be switched alternately in cycles, overlapping of the clutch and brake torques must be avoided.
If clutch and brake are each actuated by their own **separate** valve, this can be ensured by the selection of a suitable delay between disengagement of the clutch and application of the brake (and between releasing of the brake and engagement of the clutch). If, on the other hand, the clutch and brake are actuated with just **one** valve, the engagement pressure of the clutch must be matched to the spring pressure of the brake. The spring pressure of the brake should be around 0.1 to 0.2 bar lower than the engagement pressure of the clutch. In this way when the operating pressure is applied, first the brake will be released and then the clutch will be engaged. When the pressure is released, the sequence is reversed: First the clutch opens and then the brake is applied.

## Clutches and brakes

### Clutch operation




### Brake operation




**Clutch engagement**
The piston (**4**) of the clutch is subjected to compressed air via the air inlet (**5**). The piston (**4**) compresses the plates (**2**) against the stop plate (**1**), thus engaging the clutch.

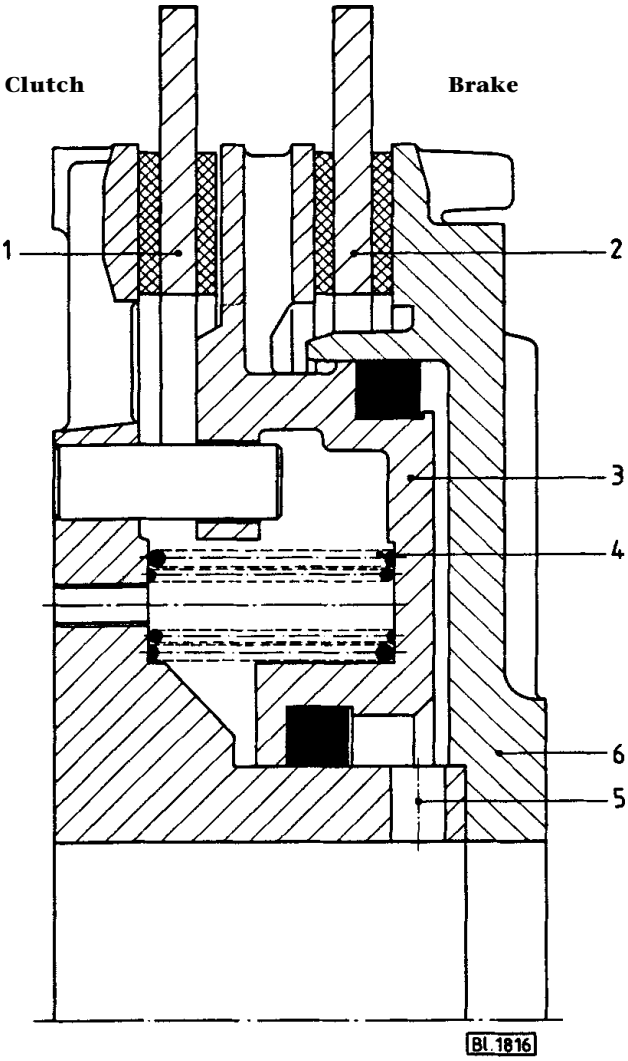
**Clutch disengagement**
When the compressed air is switched off, the springs (**3**) push the piston (**4**) back to its initial position thus disengaging the clutch.

**Application of the brake**
In the depressurized state the springs (**5**) press the piston (**4**) and this in turn compresses the plate stack (**2**) against the stop plate (**1**). The force of the springs (**5**) keeps the brake applied.

**Releasing of the brake**
To release the brake, compressed air is applied to the cylinder. The piston (4) is moved against the force of the springs to its position at the end plate (**6**). The brake is then released.

# Clutch/brake combined units

## Operation of the single-plate clutch/ brake combined units




### Application of brake

In the depressurized state the springs (**4**) press against the piston (**3**). The piston (**3**) moves and presses the brake plate (**2**) against a pressure plate which is connected to the cylinder (**6**). In this way the brake is applied.

### Engagement of the clutch

The piston (**3**) is subjected to compressed air via the air inlet (**5**). The piston (**3**) is moved away from the brake plate (**2**) until it makes contact on the clutch plate and thus engages the clutch. Overlap between brake and clutch, in clutch/brake combined units, is not possible.

**Clutch/brake combined units of series 0400 should only be used for replacement purposes.** Series 0406 or 0420 should be used in the case of new designs.

## Properties and areas of application

The single-plate clutch combined with a spring-applied single-plate brake is well proven in general mechanical engineering in which medium-sized and large masses must be accelerated or decelerated in short periods of time. Overlap, i.e. engagement of the clutch before the brake has been released and vice-versa, is impossible. The unit is characterised by its ability to withstand high thermal loading. When wear has taken place, the plates or friction blocks can be replaced without the unit having to be dismantled. The unit conforms to the safety regulations of the Employer's Liability Insurance Association.
The major fields of application are in presses, guillotines, automatic punching machines and wood processing machines together with textile, plastic and paper-processing machines.

## Design characteristics

### Friction linings

The clutch/brake combined units are supplied with friction linings which are bonded or riveted but can also be supplied, on request, with friction blocks. The version with friction blocks on the clutch side is the most suitable one for presses which are operated continuously. All of the friction linings and friction blocks are **free of asbestos and are suitable only for dry-running. It is essential that they be kept free of lubricants.**

### Torques

The ratio between braking torque and clutch engagement torque can be changed by varying the number of springs. In this way it is always possible to obtain the optimum clutch design. Calculations for clutch design please see section 1 "Technical information".

# Technical notes

## The following technical notes should be used in conjunction with the product data sheets of the series 0406, 0420.

### Operating pressure
Maximum permissible operating pressure $p_{max}$ = 6 bar.

### Maximum speed
Maximum speeds $n_{max}$ stated in the product data sheets apply **only for continuous running.** Balancing of the unit is to be recommended and should be carried out when installed on the clutch shaft.

### Friction materials
Only friction materials which do not contain asbestos are used for dry-running units. It is essential that **friction surfaces are kept free of lubricants.**

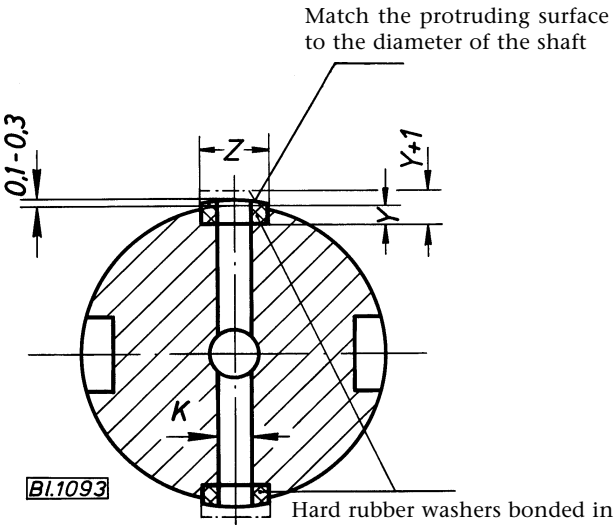
### Braking angle (series 0420)
Versions with smaller cylinder volumes and an adjustment facility with wear indicator are available for applications where it is necessary that the braking angle remains constant throughout the life of the lining. Details on request.

### Mounting of the unit on the shaft
Two keyways offset at 180° relative to one another are provided in the bore for securing the unit to the layshaft or crankshaft. See the product data sheets for the dimensions of the bores and keyways. Please see section 1 "Technical information" for the relevant tolerances. Details on mounting with locking assemblies on request.

### Compressed air feed
The compressed air is fed into the clutch through the shaft. There are two holes (ØK) in the clutch hub. These are offset at 180° relative to one another and at 90° to the keyways.

### Sealing
The method of sealing between shaft and clutch with the aid of **washers** and **O-rings** is made clear in the product data sheets. **These items are not supplied with the clutch.**

A further method of sealing is to glue hard rubber washers into the shaft.
For the dimensions see the table and figure below.




| Series 0406 Size | 29 | 40 | 50 | 61 | 71 | 76 | 79 | 82 | 90 |
|---|---|---|---|---|---|---|---|---|---|
| ØK | 6 | 8 | 10 | 14 | 17 | 20 | 22 | 25 | 30 |
| ØZ | 15 | 20 | 25 | 30 | 35 | 40 | 40 | 50 | 55 |
| Y counter-boring depth | 3 | 5 | 7 | 7 | 9 | 11 | 11 | 15 | 15 |

| Series 0420 Size | 23 | 29 | 40 | 50 | 61 | 62 | 67 | 72 | 77 | 80 | 83 | 87 | 90 | 91 | 92 | 93 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ØK | 4 | 5 | 6 | 8 | 11 | 13 | 14 | 16 | 18 | 20 | 21 | 23 | 25 | 30 | 32 | 35 |
| ØZ | 12 | 15 | 20 | 25 | 30 | 30 | 30 | 35 | 35 | 40 | 40 | 40 | 50 | 55 | 60 | 65 |
| Y counter-boring depth | 3 | 3 | 5 | 7 | 7 | 7 | 7 | 9 | 9 | 11 | 11 | 11 | 15 | 15 | 17 | 17 |

# Possible torque variations for clutch and brake

| Series 0406-...-..-000000 | $M_{stat}$ clutch [Nm] | | $M_{dyn}$ brake [Nm] |
|---|---|---|---|
| | p = 6 bar | p = 5,5 bar | |
| .0.-29-... | 425 | 350 | 425 |
| .1.-29-... | 500 | 425 | 360 |
| .2.-29-... | 580 | 500 | 280 |
| .3.-29-... | 650 | 580 | 200 |
| .4.-29-... | 730 | 650 | 140 |
| .0.-40-... | 860 | 720 | 860 |
| .1.-40-... | 1020 | 870 | 720 |
| .2.-40-... | 1180 | 1030 | 560 |
| .3.-40-... | 1340 | 1190 | 420 |
| .4.-40-... | 1500 | 1340 | 280 |
| .0.-50-... | 1850 | 1500 | 1850 |
| .1.-50-... | 2200 | 1850 | 1500 |
| .2.-50-... | 2550 | 2200 | 1200 |
| .3.-50-... | 2900 | 2550 | 900 |
| .4.-50-... | 3250 | 2900 | 600 |
| .0.-61-... | 3700 | 3100 | 3700 |
| .1.-61-... | 4400 | 3700 | 3100 |
| .2.-61-... | 5100 | 4400 | 2500 |
| .3.-61-... | 5800 | 5100 | 1900 |
| .4.-61-... | 6500 | 5800 | 1250 |
| .0.-71-... | 7100 | 5800 | 6800 |
| .1.-71-... | 8300 | 7100 | 5700 |
| .2.-71-... | 9500 | 8300 | 4500 |
| .3.-71-... | 10700 | 9500 | 3400 |
| .4.-71-... | 11900 | 10700 | 2250 |
| .0.-76-... | 11000 | 9100 | 11000 |
| .1.-76-... | 13000 | 11000 | 9100 |
| .2.-76-... | 15000 | 13000 | 7300 |
| .3.-76-... | 17000 | 15000 | 5500 |
| .4.-76-... | 19000 | 17000 | 3650 |
| .0.-79-... | 14500 | 12000 | 14000 |
| .1.-79-... | 17000 | 14500 | 11700 |
| .2.-79-... | 19500 | 17000 | 9400 |
| .3.-79-... | 22000 | 19500 | 7000 |
| .4.-79-... | 24500 | 22000 | 4700 |
| .0.-82-... | 20500 | 17000 | 20000 |
| .1.-82-... | 24000 | 20500 | 16900 |
| .2.-82-... | 28000 | 24000 | 13500 |
| .3.-82-... | 31500 | 28000 | 10000 |
| .4.-82-... | 35000 | 31500 | 6750 |
| .0.-90-... | 40000 | 33000 | 38500 |
| .1.-90-... | 47000 | 40000 | 32000 |
| .2.-90-... | 54000 | 47000 | 25500 |
| .3.-90-... | 60500 | 54000 | 19000 |
| .4.-90-...*) | 67000 | 61000 | 12750 |

*) Further sizes on request

# Pneumatically actuated single-plate clutch/brake combined units

**12-point suspension of the plates**

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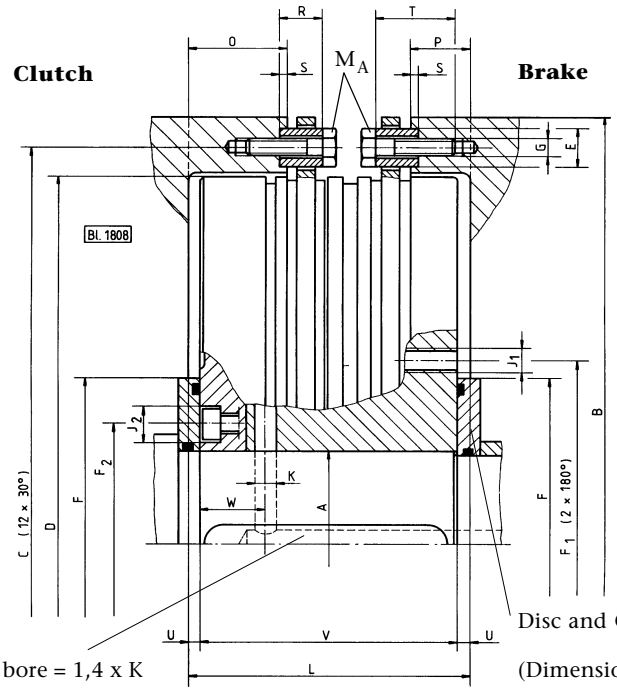
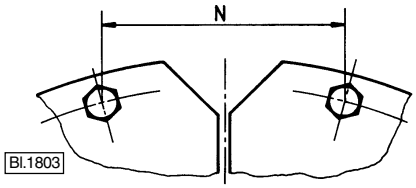



Feed bore = 1,4 x K

In order to provide adequate cooling, apertures should be provided between the suspension screws. Additional cooling can be achieved by attaching cooling fins to the clutch plate.
Details on request.




N = chord length at diameter C

To allow fitting and removal of the screws, two recesses offset at 180° to each other are provided in the brake plate. Minimum diameter required for removal of the plates is approx. 1.55 x B.

Disc and O-rings are not part of the equipment supplied!

(Dimension L = space riquired for installation)

| Series / Size | | | 0406-010-Size-100000 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **29** | **40** | **50** | **61** | **71** | **76** | **79** | **82** | **90[1)]** |
| $M_{stat}$[2)] / $M_{dyn}$[2)] / Operating pressure | Clucht / Brake | Nm / Nm / bar | 425 / 360 | 870 / 720 | 1850 / 1500 | 3700 / 3100 | 7100 / 5700 / 5,5 | 11000 / 9100 | 14500 / 11700 | 20500 / 16900 | 40000 / 32000 |
| $M_{stat}$[2)] / $M_{dyn}$[2)] / Operating pressure | Clutch / Brake | Nm / Nm / bar | 500 / 360 | 1020 / 720 | 2200 / 1500 | 4400 / 3100 | 8300 / 5700 / 6 | 13000 / 9100 | 17000 / 11700 | 24000 / 16900 | 47000 / 32000 |
| n max | | $min^{-1}$ | 2750 | 2250 | 1750 | 1500 | 1250 | 1100 | 1000 | 850 | 700 |
| Stroke volume | in new state / at max. wear | $dm^3$ / $dm^3$ | 0,07 / 0,12 | 0,13 / 0,20 | 0,28 / 0,42 | 0,68 / 0,96 | 1,14 / 1,70 | 1,87 / 2,82 | 2,51 / 3,74 | 3,46 / 5,16 | 6,13 / 9,21 |
| J | internal / external | $kgm^2$ / $kgm^2$ | 0,031 / 0,012 | 0,086 / 0,042 | 0,25 / 0,105 | 0,73 / 0,39 | 1,91 / 1,13 | 4,33 / 2,2 | 6,65 / 3,5 | 12,5 / 7,6 | 33 / 10,5 |
| Weight | | kg | 8,5 | 14,5 | 27 | 51 | 88 | 145 | 188 | 270 | 490 |
| ØA min | | | 28 | 35 | 45 | 55 | 70 | 80 | 90 | 100 | 115 |
| ØA max | | | 48 | 65 | 80 | 95 | 125 | 145 | 160 | 180 | 220 |
| Keyway at A max | | DIN 6885 | 14x3,8 | 18x4,4 | 22x5,4 | 25x5,4 | 32x7,4 | 36x8,4 | 40x9,4 | 45x10,4 | 50x11,4 |
| Diameters | B | | 220 | 275 | 347 | 435 | 535 | 620 | 680 | 775 | 950 |
| | C JS10[3)] | | 205 | 255 | 325 | 408 | 500 | 584 | 640 | 725 | 890 |
| | D | | 188 | 236 | 304 | 380 | 465 | 543 | 593 | 675 | 830 |
| | E H10[3)] | | 10 | 12 | 15 | 18 | 25 | 25 | 30 | 35 | 45 |
| | F | | 82 | 102 | 135 | 165 | 195 | 220 | 245 | 290 | 350 |
| | $F_1$ | | 94 | 116 | 152 | 195 | 242 | 275 | 305 | 360 | 425 |
| | $F_2$ | | 61 | 76 | 98 | 117 | 148 | 172 | 190 | 220 | 270 |
| | G x T | | M5x20 | M6x25 | M8x30 | M10x35 | M14x45 | M14x50 | M16x55 | M20x70 | M24x80 |
| | $J_1$ | | M6x15 | M8x15 | M10x20 | M10x20 | M12x25 | M16x30 | M20x35 | M24x36 | M30x40 |
| | $J_2$ | | 10 | 11 | 14 | 17 | 20 | 23 | 26 | 32 | 40 |
| | K[4)] | | 6 | 8 | 10 | 14 | 17 | 20 | 22 | 25 | 30 |
| Length dimensions | L | | 72 | 83 | 100 | 122 | 150 | 170 | 185 | 205 | 250 |
| | N | | 53,06 | 66 | 84,12 | 105,6 | 129,4 | 151,15 | 165,65 | 187,65 | 230,4 |
| | ± rel. to N[3)] | | 0,1 | 0,1 | 0,125 | 0,125 | 0,125 | 0,14 | 0,16 | 0,16 | 0,18 |
| | O | | 25 | 29,5 | 35,5 | 43 | 52 | 60 | 66 | 71 | 86 |
| | P | | 14 | 17,5 | 21 | 25 | 30 | 33 | 37 | 40 | 49 |
| | R | | 11 | 13 | 16 | 20 | 24 | 27,5 | 28,5 | 32 | 45 |
| | S | | 1,7 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 |
| | U | | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| | V | | 66 | 75 | 92 | 112 | 140 | 160 | 175 | 195 | 240 |
| | W | | 17 | 22 | 28 | 36 | 42,5 | 51 | 55 | 62,5 | 78 |
| Tightening torque | $M_A$ | Nm | 8,5 | 15 | 35 | 69 | 190 | 190 | 295 | 580 | 1000 |

[1)] Further sizes on request
[2)] For further torque variations see page 6.08.00.
[3)] Tolerances for customer's parts
[4)] 2 x 180°, offset by 90° to the keyways.

**For important technical information see page 6.07.00!**

# Pneumatically actuated single-plate clutch/brake combined units

**2-point suspension of the plates with short lugs**

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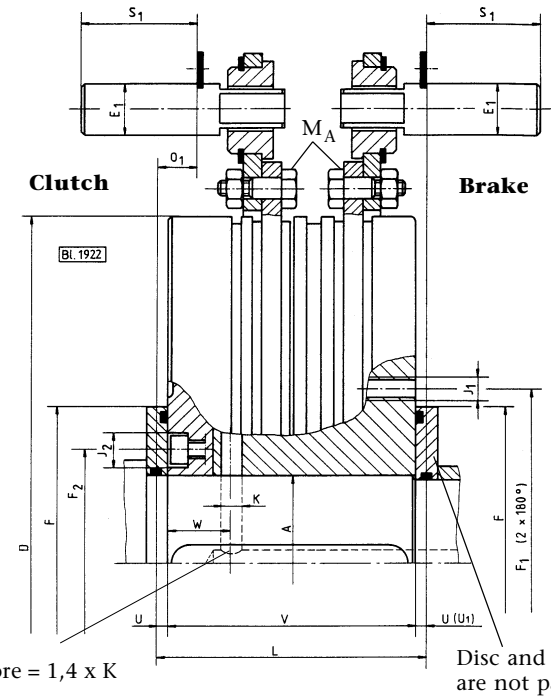
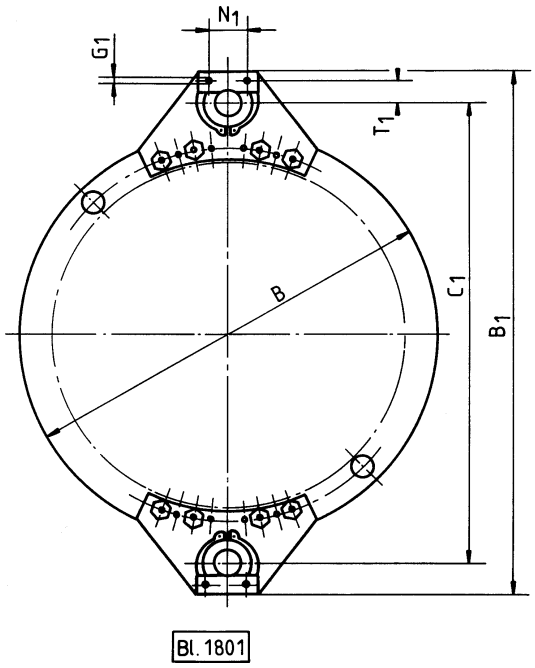



Feed bore = 1,4 x K

(Dimension L = space required for installation)

Disc and O-rings are not part of the equipment supplied!




Minimum diameter necessary to permit plates to be removed approx. 1.55 x B.

| Series / Size | | | 0406-410-Size-100000 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **29** | **40** | **50** | **61** | **71** | **76** | **79** | **82** | **90[1)]** |
| $M_{stat}$[2)] | Clutch | Nm | 425 | 870 | 1850 | 3700 | 7100 | 11000 | 14500 | 20500 | 40000 |
| $M_{dyn}$[2)] | Brake | Nm | 360 | 720 | 1500 | 3100 | 5700 | 9100 | 11700 | 16900 | 32000 |
| Operating pressure | | bar | | | | | 5,5 | | | | |
| $M_{stat}$[2)] | Clutch | Nm | 500 | 1020 | 2200 | 4400 | 8300 | 13000 | 17000 | 24000 | 47000 |
| $M_{dyn}$[2)] | Brake | Nm | 360 | 720 | 1500 | 3100 | 5700 | 9100 | 11700 | 16900 | 32000 |
| Operating pressure | | bar | | | | | 6 | | | | |
| n max | | $min^{-1}$ | 2750 | 2250 | 1750 | 1500 | 1250 | 1100 | 1000 | 850 | 700 |
| Stroke volume | in new state | $dm^3$ | 0,07 | 0,13 | 0,28 | 0,68 | 1,14 | 1,87 | 2,51 | 3,46 | 6,13 |
| | at max. wear | $dm^3$ | 0,12 | 0,20 | 0,42 | 0,96 | 1,70 | 2,82 | 3,74 | 5,16 | 9,21 |
| J | internal | $kgm^2$ | 0,031 | 0,086 | 0,25 | 0,73 | 1,91 | 4,33 | 6,65 | 12,5 | 33 |
| | external | $kgm^2$ | 0,015 | 0,055 | 0,137 | 0,54 | 1,62 | 2,97 | 4,8 | 10,6 | 21 |
| Weight | | kg | 8,7 | 15 | 28 | 56 | 97 | 160 | 203 | 305 | 562 |
| ØA min | | | 28 | 35 | 45 | 55 | 70 | 80 | 90 | 100 | 115 |
| ØA max | | | 48 | 65 | 80 | 95 | 125 | 145 | 160 | 180 | 220 |
| Keyway at A max | | DIN 6885 | 14x3,8 | 18x4,4 | 22x5,4 | 25x5,4 | 32x7,4 | 36x8,4 | 40x9,4 | 45x10,4 | 50x11,4 |
| Diameters | | B | 220 | 275 | 347 | 435 | 535 | 620 | 680 | 775 | 950 |
| | | B1 | 282 | 360 | 446 | 565 | 695 | 785 | 880 | 1000 | 1260 |
| | | C1 JS10[3)] | 250 | 315 | 390 | 495 | 610 | 695 | 770 | 880 | 1100 |
| | | D | 188 | 236 | 304 | 380 | 465 | 543 | 593 | 675 | 830 |
| | | E1 | 15 | 22 | 30 | 32 | 45 | 45 | 60 | 60 | 75 |
| | | F | 82 | 102 | 135 | 165 | 195 | 220 | 245 | 290 | 350 |
| | | F1 | 94 | 116 | 152 | 195 | 242 | 275 | 305 | 360 | 425 |
| | | F2 | 61 | 76 | 98 | 117 | 148 | 172 | 190 | 220 | 270 |
| | | G1 | 4,5 | 5,5 | 5,5 | 5,5 | 6,6 | 6,6 | 8,5 | 8,5 | 10,5 |
| | | J1 | M6x15 | M8x15 | M10x20 | M10x20 | M12x25 | M16x30 | M20x35 | M24x36 | M30x40 |
| | | J2 | 10 | 11 | 14 | 17 | 20 | 23 | 26 | 32 | 40 |
| | | K[4)] | 6 | 8 | 10 | 14 | 17 | 20 | 22 | 25 | 30 |
| Length dimensions | | L | 72 | 83 | 100 | 122 | 150 | 170 | 185 | 205 | 265 |
| | | N1 | 20 | 25 | 25 | 25 | 35 | 35 | 45 | 45 | 60 |
| | | O1 | 10,5 | 12 | 14,5 | 18 | 22 | 27 | 29 | 31 | 22 |
| | | T1 | 11 | 16 | 20 | 21 | 29,5 | 29,5 | 41 | 41 | 52,5 |
| | | S1 | 30 | 45 | 60 | 65 | 90 | 90 | 120 | 120 | 150 |
| | | U (U1) | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5(20) |
| | | V | 66 | 75 | 92 | 112 | 140 | 160 | 175 | 195 | 240 |
| | | W | 17 | 22 | 28 | 36 | 42,5 | 51 | 55 | 62,5 | 78 |
| Tightening torque | | MA Nm | 15 | 15 | 35 | 49 | 86 | 86 | 210 | 210 | 710 |

[1)] Further sizes on request

[2)] For further torque variations see page 6.08.00.

[3)] Tolerances for customer's parts

[4)] 2 x 180°, offset by 90° to the keyways.

**For important technical information see page 6.07.00!**

# Pneumatically actuated single-plate clutch/brake combined units

**2-point suspension of the plates with short lugs for the clutch plate and with long lugs for the brake plate**

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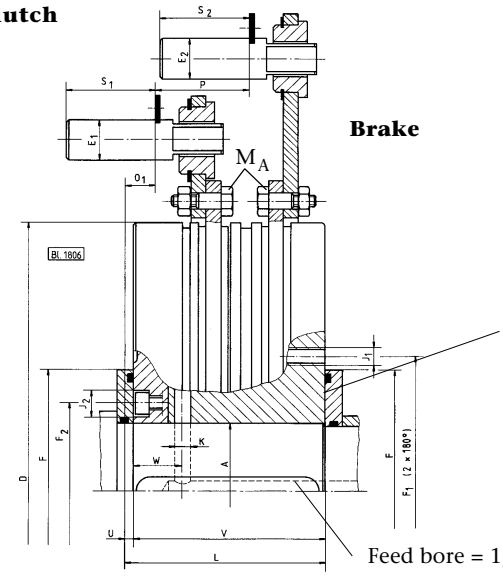
**Clutch**

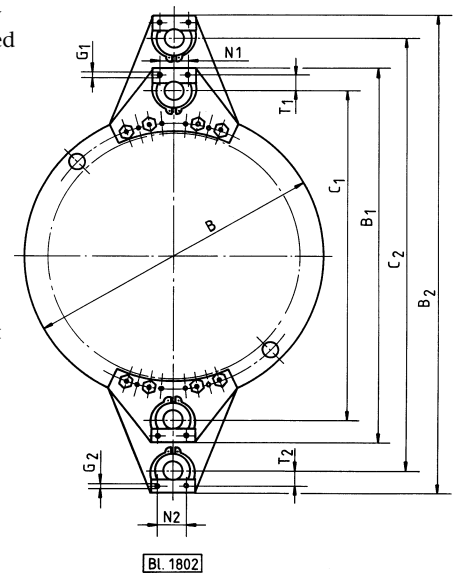



**Brake**

Minimum diameter necessary to permit plates to be removed approx. 1.55 x B.

Disc and O-rings are not part of the equipment supplied!

(Dimension L = space required for installation)




Feed bore = 1,4 x K

| Series / Size | | | 0406-510-Size-100000 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **29** | **40** | **50** | **61** | **71** | **76** | **79** | **82** | **90[1)]** |
| $M_{stat}$[2)] | Clutch | Nm | 425 | 870 | 1850 | 3700 | 7100 | 11000 | 14500 | 20500 | 40000 |
| $M_{dyn}$[2)] | Brake | Nm | 360 | 720 | 1500 | 3100 | 5700 | 9100 | 11700 | 16900 | 32000 |
| Operating pressure | | bar | | | | | 5,5 | | | | |
| $M_{stat}$[2)] | Clutch | Nm | 500 | 1020 | 2200 | 4400 | 8300 | 13000 | 17000 | 24000 | 47000 |
| $M_{dyn}$[2)] | Brake | Nm | 360 | 720 | 1500 | 3100 | 5700 | 9100 | 11700 | 16900 | 32000 |
| Operating pressure | | bar | | | | | 6,0 | | | | |
| n max | | $min^{-1}$ | 2750 | 2250 | 1750 | 1500 | 1250 | 1100 | 1000 | 850 | 700 |
| Stroke volume | in new state | $dm^3$ | 0,07 | 0,13 | 0,28 | 0,68 | 1,14 | 1,87 | 2,51 | 3,46 | 6,13 |
| | at max. wear | $dm^3$ | 0,12 | 0,20 | 0,42 | 0,96 | 1,70 | 2,82 | 3,74 | 5,16 | 9,21 |
| J | internal | $kgm^2$ | 0,031 | 0,086 | 0,25 | 0,73 | 1,91 | 4,33 | 6,65 | 12,5 | 33 |
| | external | $kgm^2$ | 0,015 | 0,055 | 0,137 | 0,54 | 1,62 | 2,97 | 4,8 | 10,6 | 21 |
| Weight | | kg | 8,9 | 15,5 | 28 | 56 | 97 | 160 | 203 | 305 | 571 |
| ØA min | | | 28 | 35 | 45 | 55 | 70 | 80 | 90 | 100 | 115 |
| ØA max | | | 48 | 65 | 80 | 95 | 125 | 145 | 160 | 180 | 220 |
| Keyway at A max | | DIN 6885 | 14x3,8 | 18x4,4 | 22x5,4 | 25x5,4 | 32x7,4 | 36x8,4 | 40x9,4 | 45x10,4 | 50x11,4 |
| Diameters | | B | 220 | 275 | 347 | 435 | 535 | 620 | 680 | 775 | 950 |
| | | $B_1$ | 282 | 360 | 446 | 565 | 695 | 785 | 880 | 1000 | 1260 |
| | | $B_2$ | 357 | 442 | 535 | 691 | 860 | 955 | 1075 | 1220 | 1595 |
| | | $C_1$ JS10[2)] | 250 | 315 | 390 | 495 | 610 | 695 | 770 | 880 | 1100 |
| | | $C_2$ | 325 | 410 | 490 | 635 | 790 | 885 | 990 | 1135 | 1450 |
| | | D | 188 | 236 | 304 | 380 | 465 | 543 | 593 | 675 | 830 |
| | | $E_1$ | 15 | 22 | 30 | 32 | 45 | 45 | 60 | 60 | 75 |
| | | $E_2$ | 15 | 15 | 22 | 30 | 32 | 32 | 45 | 45 | 65 |
| | | F | 82 | 102 | 135 | 165 | 195 | 220 | 245 | 290 | 350 |
| | | $F_1$ | 94 | 116 | 152 | 195 | 242 | 275 | 305 | 360 | 425 |
| | | $F_2$ | 61 | 76 | 98 | 117 | 148 | 172 | 190 | 220 | 270 |
| | | $G_1$ | 4,5 | 5,5 | 5,5 | 5,5 | 6,6 | 6,6 | 8,5 | 8,5 | 10,5 |
| | | $G_2$ | 4,5 | 4,5 | 5,5 | 5,5 | 5,5 | 5,5 | 6,6 | 6,6 | 8,5 |
| | | $J_1$ | M6x15 | M8x15 | M10x20 | M10x20 | M12x25 | M16x30 | M20x35 | M24x36 | M30x40 |
| | | $J_2$ | 10 | 11 | 14 | 17 | 20 | 23 | 26 | 32 | 40 |
| | | K[4)] | 6 | 8 | 10 | 14 | 17 | 20 | 22 | 25 | 30 |
| Length dimensions | | L | 69 | 79 | 96 | 117 | 145 | 165 | 180 | 200 | 245 |
| | | $N_1$ | 20 | 25 | 25 | 25 | 35 | 35 | 45 | 45 | 60 |
| | | $N_2$ | 20 | 20 | 25 | 25 | 25 | 25 | 35 | 35 | 45 |
| | | $O_1$ | 10,5 | 12 | 14,5 | 18 | 22 | 27 | 29 | 31 | 22 |
| | | P | 32 | 38,5 | 45 | 58 | 73 | 84 | 86 | 100 | 121,5 |
| | | $S_1$ | 30 | 45 | 60 | 65 | 90 | 90 | 120 | 120 | 150 |
| | | $S_2$ | 30 | 30 | 45 | 60 | 65 | 65 | 90 | 90 | 130 |
| | | $T_1$ | 11 | 16 | 20 | 21 | 29,5 | 29,5 | 41 | 41 | 52,5 |
| | | $T_2$ | 11 | 11 | 16 | 20 | 21 | 21 | 29,5 | 29,5 | 43,5 |
| | | U | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| | | V | 66 | 75 | 92 | 112 | 140 | 160 | 175 | 195 | 240 |
| | | W | 17 | 22 | 28 | 36 | 42,5 | 51 | 55 | 62,5 | 78 |
| Tightening torque | | $M_A$ Nm | 15 | 15 | 35 | 49 | 86 | 86 | 210 | 210 | 710 |

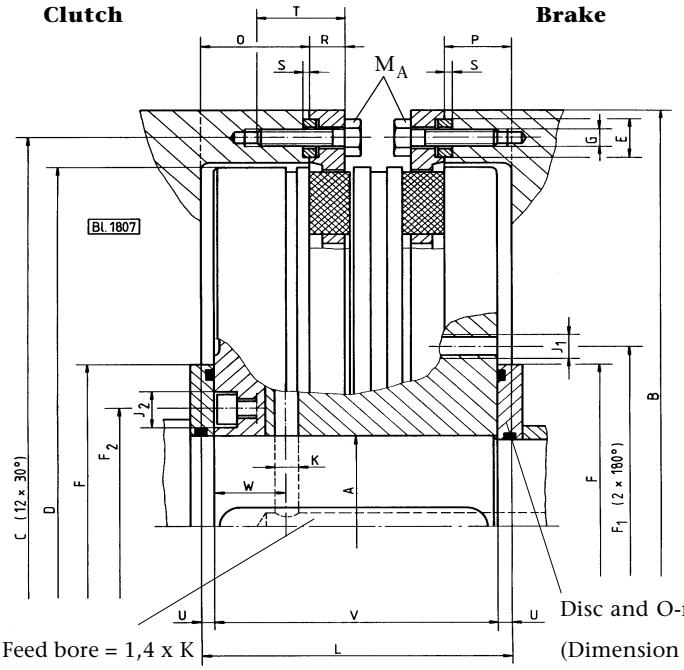
[1)] Further sizes on request
[2)] For further torque variations see page 6.08.00.
[3)] Tolerances for customer's parts
[4)] 2 x 180°, offset by 90° to the keyways.

**For important technical information see page 6.09.00!**

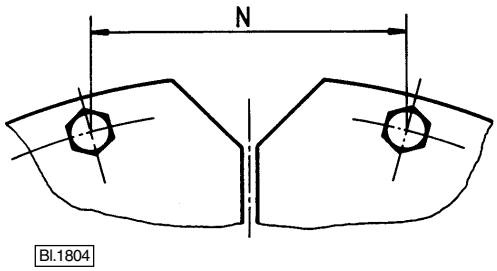
# Pneumatically actuated single-plate clutch/brake combined units

**Housing plate halves with friction blocks with 12-point securing**

Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE




Feed bore = 1,4 x K




N = chord length at diameter C

To allow fitting and removal of the screws, two recesses offset at 180° to each other are provided in the brake plate.
Minimum diameter necessary to permit plates to be removed approx. 1.55 x B.

Disc and O-rings are not part of the equipment supplied!

(Dimension L = space required for installation)

| Series | | | 0406-910-Size-100000 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | **29** | **40** | **50** | **61** | **71** | **76** | **79** | **82** | **90[1)]** |
| $M_{stat}$[2)] | Clutch | Nm | 425 | 870 | 1850 | 3700 | 7100 | 11000 | 14500 | 20500 | 40000 |
| $M_{dyn}$[2)] | Brake | Nm | 360 | 720 | 1500 | 3100 | 5700 | 9100 | 11700 | 16900 | 32000 |
| Operating pressure | | bar | | | | | 5,5 | | | | |
| $M_{stat}$[2)] | Clutch | Nm | 500 | 1020 | 2200 | 4400 | 8300 | 13000 | 17000 | 24000 | 47000 |
| $M_{dyn}$[2)] | Brake | Nm | 360 | 720 | 1500 | 3100 | 5700 | 9100 | 11700 | 16900 | 32000 |
| Operating pressure | | bar | | | | | 6 | | | | |
| n max | | $min^{-1}$ | 2750 | 2250 | 1750 | 1500 | 1250 | 1100 | 1000 | 850 | 700 |
| Stroke volume | in new state | $dm^3$ | 0,07 | 0,13 | 0,28 | 0,68 | 1,14 | 1,87 | 2,51 | 3,46 | 6,13 |
| | at max. wear | $dm^3$ | 0,12 | 0,20 | 0,42 | 0,96 | 1,70 | 2,82 | 3,74 | 5,16 | 9,21 |
| J | internal | $kgm^2$ | 0,031 | 0,086 | 0,25 | 0,73 | 1,91 | 4,33 | 6,65 | 12,5 | 33 |
| | external | $kgm^2$ | 0,012 | 0,042 | 0,105 | 0,39 | 1,13 | 2,2 | 3,5 | 7,6 | 10,5 |
| Weight | | kg | 8,5 | 14,5 | 27 | 51 | 88 | 145 | 188 | 270 | 490 |
| ØA min | | | 28 | 35 | 45 | 55 | 70 | 80 | 90 | 100 | 115 |
| ØA max | | | 48 | 65 | 80 | 95 | 125 | 145 | 160 | 180 | 220 |
| Keyway at A max | | DIN 6885 | 14x3,8 | 18x4,4 | 22x5,4 | 25x5,4 | 32x7,4 | 36x8,4 | 40x9,4 | 45x10,4 | 50x11,4 |
| Diameters | B | | 220 | 275 | 345 | 430 | 530 | 620 | 680 | 770 | 945 |
| | C JS10[3)] | | 205 | 255 | 325 | 408 | 500 | 584 | 640 | 725 | 890 |
| | D | | 188 | 236 | 304 | 380 | 465 | 543 | 593 | 675 | 830 |
| | E H10[3)] | | 10 | 12 | 15 | 18 | 25 | 25 | 30 | 35 | 45 |
| | F | | 82 | 102 | 135 | 165 | 195 | 220 | 245 | 290 | 350 |
| | $F_1$ | | 94 | 116 | 152 | 195 | 242 | 275 | 305 | 360 | 425 |
| | $F_2$ | | 61 | 76 | 98 | 117 | 148 | 172 | 190 | 220 | 270 |
| | G x T | | M5x20 | M6x25 | M8x30 | M10x35 | M14x45 | M14x50 | M16x55 | M20x70 | M24x80 |
| | $J_1$ | | M6x15 | M8x15 | M10x20 | M10x20 | M12x25 | M16x30 | M20x35 | M24x36 | M30x40 |
| | $J_2$ | | 10 | 11 | 14 | 17 | 20 | 23 | 26 | 32 | 40 |
| | K[4)] | | 6 | 8 | 10 | 14 | 17 | 20 | 22 | 25 | 30 |
| Length dimensions | L | | 72 | 83 | 100 | 122 | 150 | 170 | 185 | 205 | 250 |
| | N | | 53,06 | 66 | 84,12 | 105,6 | 129,4 | 151,15 | 165,65 | 187,65 | 230,4 |
| | ± rel. to N[3)] | | 0,1 | 0,1 | 0,125 | 0,125 | 0,125 | 0,14 | 0,16 | 0,16 | 0,18 |
| | O | | 25 | 29,5 | 35,5 | 43 | 52 | 60 | 66 | 71 | 86 |
| | P | | 14 | 17,5 | 21 | 25 | 30 | 33 | 37 | 40 | 49 |
| | R | | 8,5 | 10 | 12 | 15,5 | 20 | 23 | 24 | 27 | 32,5 |
| | S | | 1,7 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 |
| | U | | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| | V | | 66 | 75 | 92 | 112 | 140 | 160 | 175 | 195 | 240 |
| | W | | 17 | 22 | 28 | 36 | 42,5 | 51 | 55 | 62,5 | 78 |
| Tightening torque | $M_A$ | Nm | 8,5 | 15 | 35 | 69 | 190 | 190 | 295 | 580 | 1000 |

[1)] Further sizes on request
[2)] For further torque variations see page 6.08.00.
[3)] Tolerances for customer's parts
[4)] 2 x 180°, offset by 90° to the keyways.

**For important technical information see page 6.07.00!**

# Possible torque variations for clutch and brake

| Series 0420-...-..-000000 | $M_{stat}$ clutch [Nm] | | $M_{dyn}$ brake [Nm] |
|---|---|---|---|
| | p = 5,5 bar | p = 6 bar | |
| **23-301** | – | 140 | 140 |
| **23-330** | 180 | 200 | 110 |
| **23-331** | 200 | 220 | 90 |
| **23-332** | 220 | 240 | 75 |
| **23-333** | 240 | 260 | 60 |
| **23-334** | 260 | 280 | 50 |
| **29-301** | – | 220 | 220 |
| **29-330** | 260 | 300 | 180 |
| **29-331** | 300 | 340 | 150 |
| **29-332** | 330 | 375 | 120 |
| **29-333** | 370 | 410 | 90 |
| **29-334** | 410 | 450 | 60 |
| **40-301** | – | 480 | 480 |
| **40-330** | 550 | 630 | 350 |
| **40-331** | 620 | 700 | 290 |
| **40-332** | 700 | 780 | 230 |
| **40-333** | 770 | 850 | 170 |
| **40-334** | 840 | 920 | 110 |
| **50-301** | – | 850 | 850 |
| **50-330** | 1050 | 1250 | 700 |
| **50-331** | 1200 | 1400 | 570 |
| **50-332** | 1300 | 1500 | 470 |
| **50-333** | 1450 | 1650 | 380 |
| **50-334** | 1580 | 1780 | 280 |
| **61-301** | – | 1850 | 1850 |
| **61-330** | 2150 | 2500 | 1500 |
| **61-331** | 2500 | 2850 | 1200 |
| **61-332** | 2900 | 3200 | 900 |
| **61-333** | 3150 | 3500 | 650 |
| **61-334** | 3450 | 3800 | 450 |
| **62-301** | 2150 | 2600 | 2500 |
| **62-330** | 2600 | 3000 | 2100 |
| **62-331** | 3000 | 3500 | 1700 |
| **62-332** | 3500 | 4000 | 1250 |
| **62-333** | 4000 | – | 850 |
| **67-301** | 2900 | 3500 | 3350 |
| **67-330** | 3500 | 4100 | 2800 |
| **67-331** | 4100 | 4700 | 2250 |
| **67-332** | 4700 | 5300 | 1700 |
| **67-333** | 5300 | – | 1120 |
| **72-301** | 4000 | 4900 | 4700 |
| **72-330** | 4900 | 5700 | 3900 |
| **72-331** | 5700 | 6600 | 3100 |
| **72-332** | 6600 | 7400 | 2300 |
| **72-333** | 7400 | – | 1500 |
| **77-301** | 6400 | 7700 | 7300 |
| **77-330** | 7700 | 9000 | 6100 |
| **77-331** | 9000 | 10000 | 4900 |
| **77-332** | 10000 | 11500 | 3700 |
| **77-333** | 11500 | – | 2450 |
| **80-301** | 8300 | 10000 | 9700 |
| **80-330** | 10000 | 11500 | 8100 |
| **80-331** | 11500 | 13000 | 6500 |
| **80-332** | 13000 | 15000 | 4900 |
| **80-333** | 15000 | – | 3250 |
| **83-301** | 12500 | 15000 | 14300 |
| **83-330** | 15000 | 17500 | 11900 |
| **83-331** | 17500 | 20000 | 9500 |
| **83-332** | 20000 | 22500 | 7100 |
| **83-333** | 22500 | – | 4700 |
| **87-301** | 18000 | 21500 | 20800 |
| **87-330** | 21500 | 25000 | 17400 |
| **87-331** | 25000 | 28500 | 14000 |
| **87-332** | 28500 | 32500 | 10400 |
| **87-333** | 32500 | – | 7000 |

| Series 0420-...-..-000000 | $M_{stat}$ clutch [Nm] | | $M_{dyn}$ brake [Nm] |
|---|---|---|---|
| | p = 5,5 bar | p = 6 bar | |
| **90-301** | 24000 | 29000 | 27000 |
| **90-330** | 29000 | 34000 | 22500 |
| **90-331** | 34000 | 38000 | 18000 |
| **90-332** | 38000 | 43000 | 13500 |
| **90-333** | 43000 | – | 9000 |
| **91-301** | 33000 | 39000 | 35000 |
| **91-330** | 39000 | 45000 | 29000 |
| **91-331** | 45000 | 51000 | 23000 |
| **91-332** | 51000 | 57000 | 17500 |
| **91-333** | 57000 | – | 11500 |
| **92-301** | 49000 | 58000 | 50000 |
| **92-330** | 58000 | 67000 | 42000 |
| **92-331** | 67000 | 75000 | 33000 |
| **92-332** | 75000 | 84000 | 25000 |
| **92-333** | 84000 | – | 16500 |
| **93-301** | 68000 | 80000 | 70000 |
| **93-330** | 80000 | 93000 | 59000 |
| **93-331** | 93000 | 105000 | 47000 |
| **93-332** | 105000 | 115000 | 35000 |
| **93-333** | 115000 | – | 23500 |

| Series / Size | | | 0420-1.9-Size-330000 109-23 | 109-29 | 129-40 | 129-50 | 129-61 |
|---|---|---|---|---|---|---|---|
| $M_{stat}$[1] / $M_{dyn}$[1] / Operating pressure | Clutch / Brake | Nm / Nm / bar | 180 / 110 | 260 / 180 | 550 / 350 / 5,5 | 1050 / 700 | 2150 / 1500 |
| $M_{stat}$[1] / $M_{dyn}$[1] / Operating pressure | Clutch / Brake | Nm / Nm / bar | 200 / 110 | 300 / 180 | 630 / 350 / 6 | 1250 / 700 | 2500 / 1500 |
| n max | | $min^{-1}$ | 3200 | 2750 | 2250 | 1750 | 1400 |
| Stroke volume | in new state / at max. wear | $dm^3$ / $dm^3$ | 0,03 / 0,05 | 0,07 / 0,1 | 0,13 / 0,17 | 0,23 / 0,29 | 0,46 / 0,61 |
| J | internal / external | $kgm^2$ / $kgm^2$ | 0,014 / 0,0043 | 0,02 / 0,008 | 0,058 / 0,025 | 0,188 / 0,063 | 0,55 / 0,2 |
| Weight | | kg | 5,6 | 7 | 12,5 | 24 | 45 |
| ØA prebored | | | 15 | 15 | 25 | 35 | 45 |
| Recommended bores[2] | A max H7 / Keyway DIN 6885 | | **35 / 10x3,3** | **35 / 10x3,3** | **45 / 14x3,8** | **65 / 18x4,4** | **80 / 22x5,4** |
| | A H7 / Keyway DIN 6885 | | **30 / 8x3,3** | **32 / 10x3,3** | **40 / 12x3,3** | **60 / 18x4,4** | **75 / 20x4,9** |
| | A H7 / Keyway DIN 6885 | | **25 / 8x3,3** | **30 / 8x3,3** | | **55 / 16x4,3** | **70 / 20x4,9** |
| | A H7 / Keyway DIN 6885 | | | | | **50 / 14x3,8** | **65/60 / 18x4,4** |
| | A H7 / Keyway DIN 6885 | | | | | | **55 / 16x4,3** |
| Diameters | B | | 198 | 220 | 275 | 347 | 435 |
| | C JS10[3] | | 182 | 205 | 255 | 325 | 408 |
| | D | | 166 | 188 | 236 | 304 | 380 |
| | E H10[3] | | 10 | 10 | 12 | 15 | 18 |
| | F | | 75 | 70 | 85 | 125 | 145 |
| | $F_1$ | | 67 | 91 | 113 | 142 | 178 |
| | $F_2$ | | 51 | 47 | 58 | 81 | 98 |
| | $F_3$ | | 121 | 100 | 133 | 206 | 257 |
| | G | | M5 | M5 | M6 | M8 | M10 |
| | $J_1$ | | 3xM6 | 2xM8 | 2xM8 | 3xM8 | 3xM8 |
| | $J_2$ | | 10 | 10 | 11 | 14 | 14 |
| | K[4] | | 4 | 5 | 6 | 8 | 11 |
| Length dimensions | L | | 50 | 64 | 74 | 90 | 110 |
| | N | | 47,1 | 53,06 | 66 | 84,12 | 105,6 |
| | ± rel. to N[3] | | 0,1 | 0,1 | 0,1 | 0,125 | 0,125 |
| | O | | 8 | 12 | 15 | 18 | 22,5 |
| | P | | 14 | 21 | 24 | 30,5 | 36,5 |
| | R | | 11 | 11 | 13 | 16 | 19 |
| | S | | 2 | 2 | 2 | 3 | 3 |
| | T | | 20 | 20 | 25 | 30 | 35 |
| | U | | 2 | 3 | 4 | 4 | 5 |
| | V | | 46 | 58 | 66 | 82 | 100 |
| | W | | 15 | 17 | 18,5 | 23 | 27 |
| Tightening torque | $M_A$ | Nm | 8,5 | 8,5 | 15 | 35 | 69 |

[1] For further torque variations see page 6.13.00
[2] Bore sizes shown in bold print are available ex stock.
[3] Tolerances for customer's parts
[4] 2 x 180°, offset by 90° to the keyways.

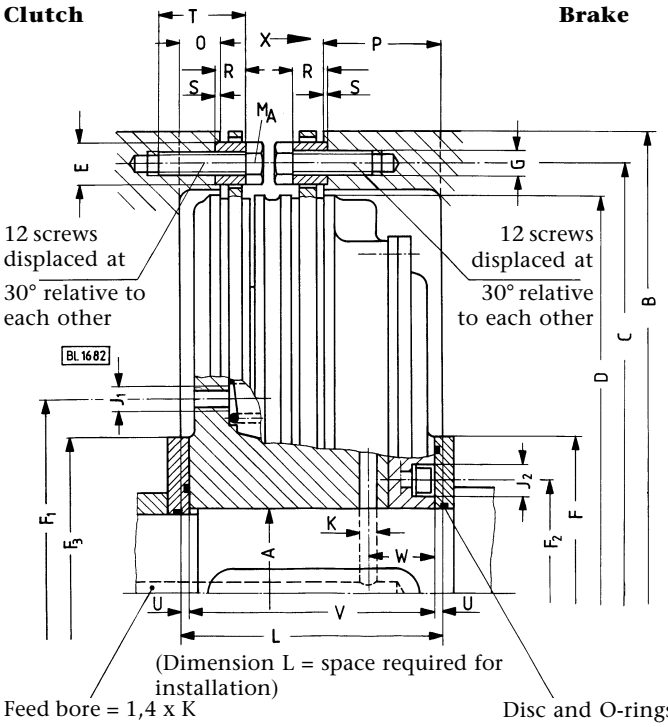
**For important technical information see page 6.07.00!**

# Pneumatically actuated single-plate clutch/brake combined units

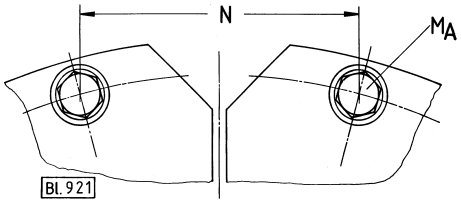
**12-point suspension of the plates**

Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE

**Clutch** **Brake**




In order to provide adequate cooling, apertures should be provided between the suspension screws. Additional cooling can be achieved by attaching cooling fins to the clutch plate. Details on request.




**View X**

To allow fitting and removal of the screws, two recesses offset at 180° to each other are provided in the brake plate. Minimum diameter required for removal of the plates is approx. 1.55 x B.

| Series | | | 0420-149-Size-330000 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | **62** | **67** | **72** | **77** | **80** | **83** | **87** | **90** | **91** | **92** | **93** |
| $M_{stat}$ [1] | Clutch | Nm | 2600 | 3500 | 4900 | 7700 | 10000 | 15000 | 21500 | 29000 | 39000 | 58000 | 80000 |
| $M_{dyn}$ [1] | Brake | Nm | 2100 | 2800 | 3900 | 6100 | 8100 | 11900 | 17400 | 22500 | 29000 | 42000 | 59000 |
| Operating pressure | | bar | | | | | | 5,5 | | | | | |
| $M_{stat}$ [1] | Clutch | Nm | 3000 | 4100 | 5700 | 9000 | 11500 | 17500 | 25000 | 34000 | 45000 | 67000 | 93000 |
| $M_{dyn}$ [1] | Brake | Nm | 2100 | 2800 | 3900 | 6100 | 8100 | 11900 | 17400 | 22500 | 29000 | 42000 | 59000 |
| Operating pressure | | bar | | | | | | 6 | | | | | |
| n max | | $min^{-1}$ | 1500 | 1400 | 1250 | 1100 | 1000 | 850 | 750 | 700 | 630 | 560 | 500 |
| Stroke volume | in new state | $dm^3$ | 0,45 | 0,53 | 0,76 | 1,21 | 1,59 | 2,37 | 3,04 | 4,07 | 5,02 | 6,68 | 8,3 |
| | at max. wear | $dm^3$ | 0,64 | 0,76 | 1,14 | 1,85 | 2,35 | 3,57 | 4,58 | 6,24 | 7,64 | 10,54 | 13,11 |
| J | internal | $kgm^2$ | 0,52 | 0,84 | 1,41 | 2,94 | 5 | 8,8 | 15,5 | 24,2 | 37,25 | 67,25 | 118,15 |
| | external | $kgm^2$ | 0,2 | 0,33 | 0,5 | 1,08 | 1,7 | 3,34 | 5,78 | 9,53 | 12,54 | 20,45 | 37,57 |
| Weight | | kg | 45 | 59 | 80 | 124 | 170 | 240 | 333 | 437 | 539 | 763 | 1076 |
| ØA prebored | | | 45 | 45 | 45 | 65 | 90 | 100 | 125 | 125 | 140 | 150 | 170 |
| ØA max | H7 | | 90 | 95 | 105 | 125 | 145 | 160 | 180 | 200 | 220 | 240 | 270 |
| Keyway | DIN 6885 | | 25x5,4 | 25x5,4 | 28x6,4 | 32x7,4 | 36x8,4 | 40x9,4 | 45x10,4 | 45x10,4 | 50x11,4 | 56x12,4 | 63x12,4 |
| Diameters | B | | 435 | 482 | 535 | 620 | 680 | 775 | 865 | 950 | 1025 | 1145 | 1285 |
| | C JS10 [3] | | 408 | 450 | 500 | 584 | 640 | 725 | 810 | 890 | 965 | 1080 | 1215 |
| | D | | 380 | 420 | 465 | 543 | 593 | 675 | 755 | 830 | 905 | 1015 | 1140 |
| | E H10 [3] | | 18 | 22 | 25 | 25 | 30 | 35 | 40 | 45 | 45 | 50 | 55 |
| | F/F3 | | 160 | 160 | 180 | 225 | 250 | 275 | 300 | 330 | 360 | 400 | 450 |
| | F1 | | 190 | 200 | 230 | 275 | 300 | 345 | 380 | 410 | 450 | 520 | 580 |
| | F2 | | 110 | 115 | 125 | 150 | 175 | 190 | 210 | 230 | 260 | 285 | 320 |
| | G | | M10 | M12 | M14 | M14 | M16 | M20 | M24 | M24 | M24 | M27 | M30 |
| | 3 x J1 | | M8 | M10 | M10 | M12 | M12 | M16 | M16 | M20 | M20 | M24 | M27 |
| | J2 | | 16 | 18,5 | 18,5 | 21 | 26 | 28 | 28 | 28 | 34 | 42 | 42 |
| | K [4] | | 13 | 14 | 16 | 18 | 20 | 21 | 23 | 25 | 30 | 32 | 35 |
| Length dimensions | L | | 122 | 135 | 150 | 170 | 195 | 215 | 240 | 258 | 270 | 305 | 340 |
| | N | | 105,6 | 116,5 | 129,4 | 151,15 | 165,65 | 187,65 | 209,65 | 230,4 | 249,75 | 279,5 | 314,5 |
| | ± rel.to N [3] | | 0,125 | 0,125 | 0,125 | 0,14 | 0,16 | 0,16 | 0,18 | 0,18 | 0,18 | 0,21 | 0,21 |
| | O | | 21 | 23 | 27 | 30 | 32 | 34 | 39 | 43 | 47 | 51 | 57 |
| | P | | 52 | 55 | 60 | 68 | 84 | 90 | 100 | 104 | 108 | 125 | 136 |
| | R | | 19 | 20 | 22 | 26 | 27 | 32 | 37 | 45 | 45 | 50 | 55 |
| | S | | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 10 | 10 | 10 | 10 |
| | T | | 35 | 40 | 45 | 50 | 55 | 70 | 80 | 90 | 90 | 100 | 110 |
| | U | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | V | | 112 | 125 | 140 | 160 | 185 | 205 | 230 | 248 | 260 | 295 | 330 |
| | W | | 27 | 30 | 33 | 37,5 | 44 | 47 | 55 | 60 | 68 | 76 | 85 |
| Tightening torque $M_A$ | | Nm | 69 | 120 | 190 | 190 | 295 | 580 | 1000 | 1000 | 1000 | 1500 | 2000 |

| Series / Size | | | 0420-1.8-Size-330000 108-23 | 108-29 | 128-40 | 128-50 | 128-61 |
|---|---|---|---|---|---|---|---|
| $M_{stat}$[1] / $M_{dyn}$[1] Operating pressure | Clutch / Brake | Nm / Nm / bar | 180 / 110 | 260 / 180 | 550 / 350 / 5,5 | 1050 / 700 | 2150 / 1500 |
| $M_{stat}$[1] / $M_{dyn}$[1] Operating pressure | Clutch / Brake | Nm / Nm / bar | 200 / 110 | 300 / 180 | 630 / 350 / 6 | 1250 / 700 | 2500 / 1500 |
| n max | | $min^{-1}$ | 3200 | 2750 | 2250 | 1750 | 1400 |
| Stroke volume | in new state / at max. wear | $dm^3$ / $dm^3$ | 0,03 / 0,05 | 0,07 / 0,1 | 0,13 / 0,17 | 0,23 / 0,29 | 0,46 / 0,61 |
| J | internal / external | $kgm^2$ / $kgm^2$ | 0,014 / 0,008 | 0,02 / 0,011 | 0,058 / 0,038 | 0,188 / 0,095 | 0,55 / 0,35 |
| Weight | | kg | 6 | 7,2 | 13 | 25 | 50 |
| ØA prebored | | | 15 | 15 | 25 | 35 | 45 |
| Recommended bores[2] | A max H7 | | **35** | **35** | **45** | **65** | **80** |
| | Keyway DIN 6885 | | **10x3,3** | **10x3,3** | **14x3,8** | **18x4,4** | **22x5,4** |
| | A H7 | | **30** | **32** | **40** | **60** | **75** |
| | Keyway DIN 6885 | | **8x3,3** | **10x3,3** | **12x3,3** | **18x4,4** | **20x4,9** |
| | A H7 | | **25** | **30** | | **55** | **70** |
| | Keyway DIN 6885 | | **8x3,3** | **8x3,3** | | **16x4,3** | **20x4,9** |
| | A H7 | | | | | **50** | **65/60** |
| | Keyway DIN 6885 | | | | | **14x3,8** | **18x4,4** |
| | A H7 | | | | | | **55** |
| | Keyway DIN 6885 | | | | | | **16x4,3** |
| Diameters | B | | 198 | 220 | 275 | 347 | 435 |
| | $B_1$ | | 262 | 282 | 360 | 435 | 560 |
| | $C_1$ JS10[3] | | 230 | 250 | 315 | 390 | 495 |
| | D | | 166 | 188 | 236 | 304 | 380 |
| | $E_1$ | | 14 | 14 | 22 | 22 | 30 |
| | F | | 75 | 70 | 85 | 125 | 145 |
| | $F_1$ | | 67 | 91 | 113 | 142 | 178 |
| | $F_2$ | | 51 | 47 | 58 | 81 | 98 |
| | $F_3$ | | 121 | 100 | 133 | 206 | 257 |
| | $G_1$ | | 4,5 | 4,5 | 5,5 | 5,5 | 5,5 |
| | $J_1$ | | 3xM6 | 2xM8 | 2xM8 | 3xM8 | 3xM8 |
| | $J_2$ | | 10 | 10 | 11 | 14 | 14 |
| | K[4] | | 4 | 5 | 6 | 8 | 11 |
| Length dimensions | $N_1$ | | 20 | 20 | 25 | 25 | 25 |
| | O | | 5,5 | 5,5 | 8,5 | 10 | 10 |
| | P | | 0,5 | 4 | – | 2,5 | 4 |
| | $S_1$ | | 25 | 28 | 45 | 45 | 60 |
| | $T_1$ | | 11 | 11 | 16 | 16 | 20 |
| | V | | 46 | 58 | 66 | 82 | 100 |
| | W | | 15 | 17 | 18,5 | 23 | 27 |
| Tightening torque | $M_A$ | Nm | 15 | 15 | 15 | 35 | 49 |

[1] For further torque variations see page 6.13.00
[2] Bore sizes shown in bold print are available ex stock.
[3] Tolerances for customer's parts
[4] 2 x 180°, offset by 90° to the keyways.

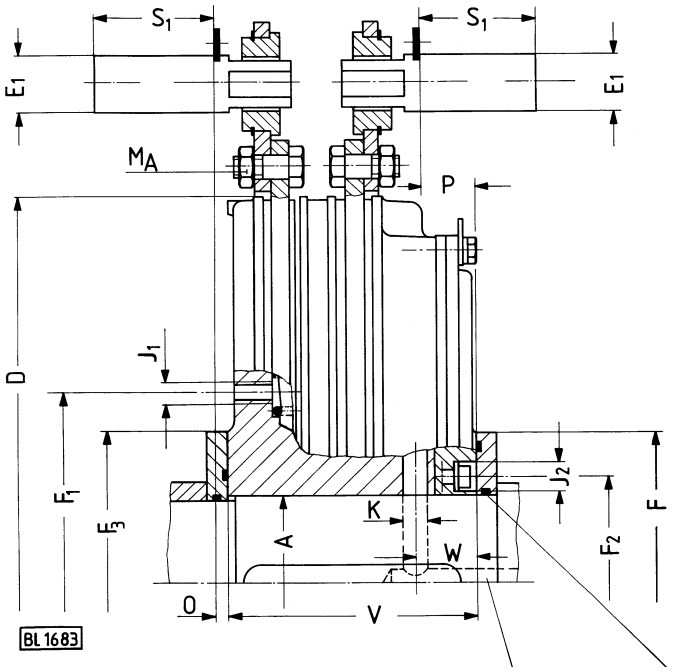
**For important technical information see page 6.07.00!**

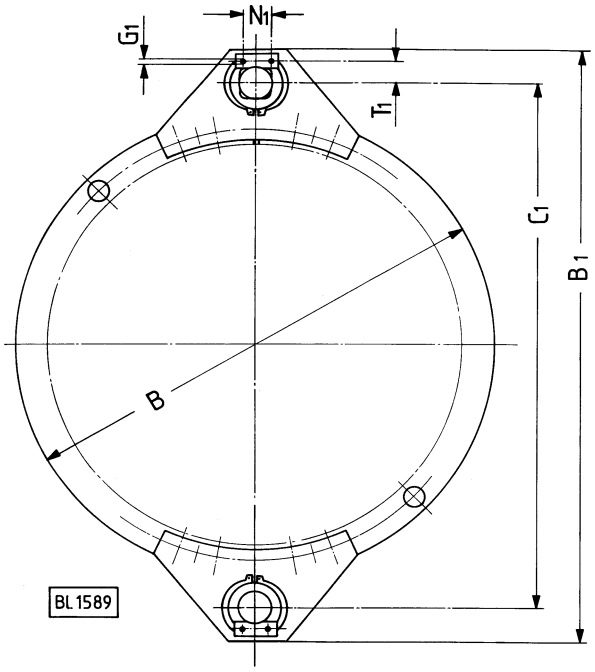
# Pneumatically actuated single-plate clutch/brake combined units

**2-point suspension of the plates with short lugs**

Ortlinghaus SEIT 1898 — DIE TECHNIK DER KONTROLLIERTEN MOMENTE

**Clutch** **Brake**




Feed bore = 1,4 x K

Disc and O-rings are not part of the equipment supplied!

| Series / Size | | | 0420-148-Size-330000 62 | 67 | 72 | 77 | 80 | 83 | 87 | 90 | 91 | 92 | 93 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_{stat}$ [1] | Clutch | Nm | 2600 | 3500 | 4900 | 7700 | 10000 | 15000 | 21500 | 29000 | 39000 | 58000 | 80000 |
| $M_{dyn}$ [1] | Brake | Nm | 2100 | 2800 | 3900 | 6100 | 8100 | 11900 | 17400 | 22500 | 29000 | 42000 | 59000 |
| Operating pressure | | bar | | | | | | 5,5 | | | | | |
| $M_{stat}$ [1] | Clutch | Nm | 3000 | 4100 | 5700 | 9000 | 11500 | 17500 | 25000 | 34000 | 45000 | 67000 | 93000 |
| $M_{dyn}$ [1] | Brake | Nm | 2100 | 2800 | 3900 | 6100 | 8100 | 11900 | 17400 | 22500 | 29000 | 42000 | 59000 |
| Operating pressure | | bar | | | | | | 6 | | | | | |
| n max | | $min^{-1}$ | 1500 | 1400 | 1250 | 1100 | 1000 | 850 | 750 | 700 | 630 | 560 | 500 |
| Stroke volume | in new state | $dm^3$ | 0,45 | 0,53 | 0,76 | 1,21 | 1,59 | 2,37 | 3,04 | 4,07 | 5,02 | 6,68 | 8,3 |
| | at max. wear | $dm^3$ | 0,64 | 0,76 | 1,14 | 1,85 | 2,35 | 3,57 | 4,58 | 6,24 | 7,64 | 10,54 | 13,11 |
| J | internal | $kgm^2$ | 0,52 | 0,84 | 1,41 | 2,94 | 5 | 8,8 | 15,5 | 24,2 | 37,25 | 67,25 | 118,15 |
| | external | $kgm^2$ | 0,35 | 0,57 | 0,99 | 1,85 | 3 | 6,32 | 9,69 | 20 | 25,07 | 37,22 | 71,51 |
| Weight | | kg | 48 | 66 | 90 | 137 | 189 | 272 | 368 | 509 | 614 | 846 | 1209 |
| ØA prebored | | | 45 | 45 | 45 | 65 | 90 | 100 | 125 | 125 | 140 | 150 | 170 |
| ØA max | H7 | | 90 | 95 | 105 | 125 | 145 | 160 | 180 | 200 | 220 | 240 | 270 |
| Keyway | DIN 6885 | | 25x5,4 | 25x5,4 | 28x6,4 | 32x7,4 | 36x8,4 | 40x9,4 | 45x10,4 | 45x10,4 | 50x11,4 | 56x12,4 | 63x12,4 |
| Diameters | B | | 435 | 482 | 535 | 620 | 680 | 775 | 865 | 950 | 1025 | 1145 | 1285 |
| | B1 | | 560 | 620 | 695 | 780 | 870 | 1000 | 1090 | 1260 | 1340 | 1460 | 1650 |
| | C1 JS10 [3] | | 495 | 550 | 610 | 695 | 770 | 880 | 970 | 1100 | 1180 | 1300 | 1465 |
| | D | | 380 | 420 | 465 | 543 | 593 | 675 | 755 | 830 | 905 | 1015 | 1140 |
| | E1 | | 30 | 32 | 40 | 40 | 45 | 55 | 55 | 75 | 75 | 75 | 90 |
| | F/F3 | | 160 | 160 | 180 | 225 | 250 | 275 | 300 | 330 | 360 | 400 | 450 |
| | F1 | | 190 | 200 | 230 | 275 | 300 | 345 | 380 | 410 | 450 | 520 | 580 |
| | F2 | | 110 | 115 | 125 | 150 | 175 | 190 | 210 | 230 | 260 | 285 | 320 |
| | G1 | | 5,5 | 5,5 | 6,5 | 6,5 | 6,5 | 8,5 | 8,5 | 10,5 | 10,5 | 10,5 | 10,5 |
| | 3 x J1 | | M8 | M10 | M10 | M12 | M12 | M16 | M16 | M20 | M20 | M24 | M27 |
| | J2 | | 16 | 18,5 | 18,5 | 21 | 26 | 28 | 28 | 28 | 34 | 42 | 42 |
| | K | | 13 | 14 | 16 | 18 | 20 | 21 | 23 | 25 | 30 | 32 | 35 |
| Length dimensions | N1 | | 25 | 25 | 35 | 35 | 35 | 45 | 45 | 60 | 60 | 60 | 60 |
| | O | | 12 | 7 | 10,5 | 13 | 12,5 | 18 | 12,5 | 26,5 | 22,5 | 16,5 | 19,5 |
| | P | | 19 | 25 | 22,5 | 25 | 39,5 | 38 | 48,5 | 34,5 | 38,5 | 57,5 | 59,5 |
| | S1 | | 60 | 65 | 80 | 80 | 90 | 110 | 110 | 150 | 150 | 150 | 180 |
| | T1 | | 20 | 21 | 27 | 27 | 29,5 | 38,5 | 38,5 | 52,5 | 52,5 | 52,5 | 60 |
| | V | | 112 | 125 | 140 | 160 | 185 | 205 | 230 | 248 | 260 | 295 | 330 |
| | W | | 27 | 30 | 33 | 37,5 | 44 | 47 | 55 | 60 | 68 | 76 | 85 |
| Tightening torque MA | | Nm | 49 | 86 | 86 | 86 | 210 | 210 | 410 | 710 | 710 | 710 | 1450 |

| Series / Size | | | 0420-1.7-Size-330000 107-23 | 107-29 | 127-40 | 127-50 | 127-61 |
|---|---|---|---|---|---|---|---|
| $M_{stat}$[1] | Clutch | Nm | 180 | 260 | 550 | 1050 | 2150 |
| $M_{dyn}$[1] | Brake | Nm | 110 | 180 | 350 | 700 | 1500 |
| Operating pressure | | bar | | | 5,5 | | |
| $M_{stat}$[1] | Clutch | Nm | 200 | 300 | 630 | 1250 | 2500 |
| $M_{dyn}$[1] | Brake | Nm | 110 | 180 | 350 | 700 | 1500 |
| Operating pressure | | bar | | | 6 | | |
| n max | | $min^{-1}$ | 3200 | 2750 | 2250 | 1750 | 1400 |
| Stroke volume | in new state | $dm^3$ | 0,03 | 0,07 | 0,13 | 0,23 | 0,46 |
| | at max. wear | $dm^3$ | 0,05 | 0,1 | 0,17 | 0,29 | 0,61 |
| J | internal | $kgm^2$ | 0,014 | 0,02 | 0,058 | 0,188 | 0,55 |
| | external | $kgm^2$ | 0,008 | 0,011 | 0,038 | 0,095 | 0,35 |
| Weight | | kg | 6,1 | 7,35 | 13,5 | 25 | 50 |
| ØA prebored | | | 15 | 15 | 25 | 35 | 45 |
| Recommended bores[2] | A max H7 | | **35** | **35** | **45** | **65** | **80** |
| | Keyway DIN 6885 | | **10x3,3** | **10x3,3** | **14x3,8** | **18x4,4** | **22x5,4** |
| | A H7 | | **30** | **32** | **40** | **60** | **75** |
| | Keyway DIN 6885 | | **8x3,3** | **10x3,3** | **12x3,3** | **18x4,4** | **20x4,9** |
| | A H7 | | **25** | **30** | | **55** | **70** |
| | Keyway DIN 6885 | | **8x3,3** | **8x3,3** | | **16x4,3** | **20x4,9** |
| | A H7 | | | | | **50** | **65/60** |
| | Keyway DIN 6885 | | | | | **14x3,8** | **18x4,4** |
| | A H7 | | | | | | **55** |
| | Keyway DIN 6885 | | | | | | **16x4,3** |
| Diameters | B | | 198 | 220 | 275 | 347 | 435 |
| | $B_1$ | | 262 | 282 | 360 | 435 | 560 |
| | $B_2$ | | 337 | 357 | 442 | 522 | 680 |
| | $C_1$ JS10[3] | | 230 | 250 | 315 | 390 | 495 |
| | $C_2$ JS10[3] | | 305 | 325 | 410 | 490 | 635 |
| | D | | 166 | 188 | 236 | 304 | 380 |
| | $E_1$ | | 14 | 14 | 22 | 22 | 30 |
| | $E_2$ | | 14 | 14 | 14 | 14 | 22 |
| | F | | 75 | 70 | 85 | 125 | 145 |
| | $F_1$ | | 67 | 91 | 113 | 142 | 178 |
| | $F_2$ | | 51 | 47 | 58 | 81 | 98 |
| | $F_3$ | | 121 | 100 | 133 | 206 | 257 |
| | $G_1$ | | 4,5 | 4,5 | 5,5 | 5,5 | 5,5 |
| | $G_2$ | | 4,5 | 4,5 | 4,5 | 4,5 | 5,5 |
| | $J_1$ | | 3xM6 | 2xM8 | 2xM8 | 3xM8 | 3xM8 |
| | $J_2$ | | 10 | 10 | 11 | 14 | 14 |
| | K[4] | | 4 | 5 | 6 | 8 | 11 |
| Length dimensions | $N_1$ | | 20 | 20 | 25 | 25 | 25 |
| | $N_2$ | | 20 | 20 | 20 | 20 | 25 |
| | O | | 5,5 | 5,5 | 8,5 | 10 | 10 |
| | P | | 26,5 | 29,5 | 39 | 49 | 52 |
| | $S_1$ | | 25 | 28 | 45 | 45 | 60 |
| | $S_2$ | | 25 | 28 | 28 | 28 | 45 |
| | $T_1$ | | 11 | 11 | 16 | 16 | 20 |
| | $T_2$ | | 11 | 11 | 11 | 11 | 16 |
| | V | | 46 | 58 | 66 | 82 | 100 |
| | W | | 15 | 17 | 18,5 | 23 | 27 |
| Tightening torque | $M_A$ | Nm | 15 | 15 | 15 | 35 | 49 |

[1] For further torque variations see page 6.13.00
[2] Bore sizes shown in bold print are available ex stock.
[3] Tolerances for customer's parts
[4] 2 x 180°, offset by 90° to the keyways.

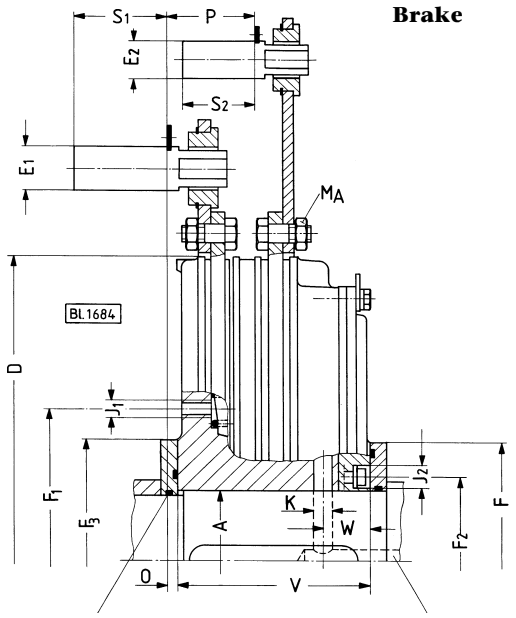
**For important technical information see page 6.07.00!**

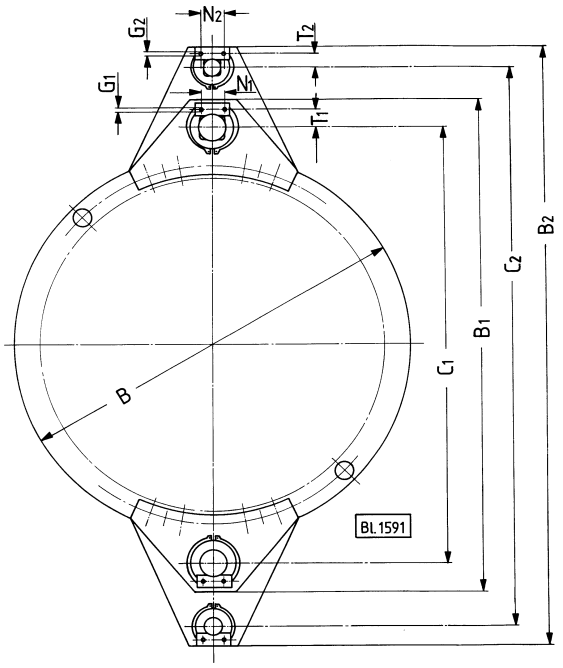
# Pneumatically actuated single-plate clutch/brake combined units

**2-point suspension with short lugs for the clutch plate and long lugs for the brake plate**

Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE

**Clutch** **Brake**




Disc and O-rings are not part of the equipment supplied!

Feed bore = 1,4 x K

| Series / Size | | | 0420-147-Size-330000 62 | 67 | 72 | 77 | 80 | 83 | 87 | 90 | 91 | 92 | 93 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_{stat}$ [1] | Clutch | Nm | 2600 | 3500 | 4900 | 7700 | 10000 | 15000 | 21500 | 29000 | 39000 | 58000 | 80000 |
| $M_{dyn}$ [1] | Brake | Nm | 2100 | 2800 | 3900 | 6100 | 8100 | 11900 | 17400 | 22500 | 29000 | 42000 | 59000 |
| Operating pressure | | bar | | | | | | 5,5 | | | | | |
| $M_{stat}$ [1] | Clutch | Nm | 3000 | 4100 | 5700 | 9000 | 11500 | 17500 | 25000 | 34000 | 45000 | 67000 | 93000 |
| $M_{dyn}$ [1] | Brake | Nm | 2100 | 2800 | 3900 | 6100 | 8100 | 11900 | 17400 | 22500 | 29000 | 42000 | 59000 |
| Operating pressure | | bar | | | | | | 6 | | | | | |
| n max | | $min^{-1}$ | 1500 | 1400 | 1250 | 1100 | 1000 | 850 | 750 | 700 | 630 | 560 | 500 |
| Stroke volume | in new state | $dm^3$ | 0,45 | 0,53 | 0,76 | 1,21 | 1,59 | 2,37 | 3,04 | 4,07 | 5,02 | 6,68 | 8,3 |
| | at max. wear | $dm^3$ | 0,64 | 0,76 | 1,14 | 1,85 | 2,35 | 3,57 | 4,58 | 6,24 | 7,64 | 10,54 | 13,11 |
| J | internal | $kgm^2$ | 0,52 | 0,84 | 1,41 | 2,94 | 5 | 8,8 | 15,5 | 24,2 | 37,25 | 67,25 | 118,15 |
| | external | $kgm^2$ | 0,35 | 0,57 | 0,99 | 1,85 | 3 | 6,32 | 9,69 | 20 | 25,07 | 37,22 | 71,51 |
| Weight | | kg | 48 | 67 | 90 | 136 | 191 | 272 | 369 | 518 | 624 | 858 | 1217 |
| ØA prebored | | | 45 | 45 | 45 | 65 | 90 | 100 | 125 | 125 | 140 | 150 | 170 |
| ØA max | H7 | | 90 | 95 | 105 | 125 | 145 | 160 | 180 | 200 | 220 | 240 | 270 |
| Keyway | DIN 6885 | | 25x5,4 | 25x5,4 | 28x6,4 | 32x7,4 | 36x8,4 | 40x9,4 | 45x10,4 | 45x10,4 | 50x11,4 | 56x12,4 | 63x12,4 |
| Diameters | B | | 435 | 482 | 535 | 620 | 680 | 775 | 865 | 950 | 1025 | 1145 | 1285 |
| | $B_1$ | | 560 | 620 | 695 | 780 | 870 | 1000 | 1090 | 1260 | 1340 | 1460 | 1650 |
| | $B_2$ | | 680 | 775 | 855 | 950 | 1075 | 1235 | 1335 | 1595 | 1670 | 1790 | 2015 |
| | $C_1$ JS10 [3] | | 495 | 550 | 610 | 695 | 770 | 880 | 970 | 1100 | 1180 | 1300 | 1465 |
| | $C_2$ JS10 [3] | | 635 | 710 | 790 | 885 | 990 | 1135 | 1235 | 1450 | 1525 | 1645 | 1855 |
| | D | | 380 | 420 | 465 | 543 | 593 | 675 | 755 | 830 | 905 | 1015 | 1140 |
| | $E_1$ | | 30 | 32 | 40 | 40 | 45 | 55 | 55 | 75 | 75 | 75 | 90 |
| | $E_2$ | | 22 | 30 | 30 | 30 | 40 | 45 | 45 | 65 | 65 | 65 | 75 |
| | F/$F_3$ | | 160 | 160 | 180 | 225 | 250 | 275 | 300 | 330 | 360 | 400 | 450 |
| | $F_1$ | | 190 | 200 | 230 | 275 | 300 | 345 | 380 | 410 | 450 | 520 | 580 |
| | $F_2$ | | 110 | 115 | 125 | 150 | 175 | 190 | 210 | 230 | 260 | 285 | 320 |
| | $G_1$ | | 5,5 | 5,5 | 6,5 | 6,5 | 6,5 | 8,5 | 8,5 | 10,5 | 10,5 | 10,5 | 10,5 |
| | $G_2$ | | 5,5 | 5,5 | 5,5 | 5,5 | 6,5 | 6,5 | 6,5 | 8,5 | 8,5 | 8,5 | 10,5 |
| | 3 x $J_1$ | | M8 | M10 | M10 | M12 | M12 | M16 | M16 | M20 | M20 | M24 | M27 |
| | $J_2$ | | 16 | 18,5 | 18,5 | 21 | 26 | 28 | 28 | 28 | 34 | 42 | 42 |
| | K [4] | | 13 | 14 | 16 | 18 | 20 | 21 | 23 | 25 | 30 | 32 | 35 |
| Length dimensions | $N_1$ | | 25 | 25 | 35 | 35 | 35 | 45 | 45 | 60 | 60 | 60 | 60 |
| | $N_2$ | | 25 | 25 | 25 | 25 | 35 | 35 | 35 | 45 | 45 | 45 | 60 |
| | O | | 12 | 7 | 10,5 | 13 | 12,5 | 18 | 12,5 | 26,5 | 22,5 | 16,5 | 19,5 |
| | P | | 52 | 54 | 66,5 | 80,5 | 81 | 98,5 | 107,5 | 120,5 | 124,5 | 134,5 | 158 |
| | $S_1$ | | 60 | 65 | 80 | 80 | 90 | 110 | 110 | 150 | 150 | 150 | 180 |
| | $S_2$ | | 45 | 60 | 60 | 60 | 80 | 90 | 90 | 130 | 130 | 130 | 150 |
| | $T_1$ | | 20 | 21 | 27 | 27 | 29,5 | 38,5 | 38,5 | 52,5 | 52,5 | 52,5 | 60 |
| | $T_2$ | | 16 | 20 | 20 | 20 | 27 | 29,5 | 29,5 | 43,5 | 43,5 | 43,5 | 52,5 |
| | V | | 112 | 125 | 140 | 160 | 185 | 205 | 230 | 248 | 260 | 295 | 330 |
| | W | | 27 | 30 | 33 | 37,5 | 44 | 47 | 55 | 60 | 68 | 76 | 85 |
| Tightening torque $M_A$ | | Nm | 49 | 86 | 86 | 86 | 210 | 210 | 410 | 710 | 710 | 710 | 1450 |

| Series / Size | | | 0420-3.9-Size-330000 30923 | 30929 | 32950 | 32961 |
|---|---|---|---|---|---|---|
| $M_{stat}$[1] Clutch / $M_{dyn}$[1] Brake / Operating pressure | | Nm / Nm / bar | 180 / 110 | 260 / 180 | 1050 / 700 / 5,5 | 2150 / 1500 |
| $M_{stat}$[1] Clutch / $M_{dyn}$[1] Brake / Operating pressure | | Nm / Nm / bar | 200 / 110 | 300 / 180 | 1250 / 700 / 6 | 2500 / 1500 |
| n max | | $min^{-1}$ | 3200 | 2750 | 1750 | 1400 |
| Stroke volume | in new state | $dm^3$ | 0,03 | 0,07 | 0,23 | 0,46 |
| | at max. wear | $dm^3$ | 0,05 | 0,10 | 0,29 | 0,61 |
| J | internal | $kgm^2$ | 0,014 | 0,02 | 0,188 | 0,55 |
| | external | $kgm^2$ | 0,0043 | 0,008 | 0,063 | 0,2 |
| Weight | | kg | 5,6 | 7 | 24 | 45 |
| ØA prebored | | | 15 | 15 | 35 | 45 |
| Recommended bores[2] | A max H7 | | **35** | **35** | **65** | **80** |
| | Keyway DIN 6885 | | **10x3,3** | **10x3,3** | **18x4,4** | **22x5,4** |
| | A H7 | | **30** | **32** | **60** | **75** |
| | Keyway DIN 6885 | | **8x3,3** | **10x3,3** | **18x4,4** | **20x4,9** |
| | A H7 | | **25** | **30** | **55** | **70** |
| | Keyway DIN 6885 | | **8x3,3** | **8x3,3** | **16x4,3** | **20x4,9** |
| | A H7 | | | | **50** | **65/60** |
| | Keyway DIN 6885 | | | | **14x3,8** | **18x4,4** |
| | A H7 | | | | | **55** |
| | Keyway DIN 6885 | | | | | **16x4,3** |
| Diameters | B | | 198,5 | 220 | 345 | 430 |
| | C JS10[3] | | 182 | 205 | 325 | 408 |
| | D | | 166 | 188 | 304 | 380 |
| | E H10[3] | | 10 | 10 | 15 | 18 |
| | F | | 75 | 70 | 125 | 145 |
| | $F_1$ | | 67 | 91 | 142 | 178 |
| | $F_2$ | | 51 | 47 | 81 | 98 |
| | $F_3$ | | 121 | 100 | 206 | 257 |
| | G | | M5 | M5 | M8 | M10 |
| | $J_1$ | | 3xM6 | 2xM8 | 3xM8 | 3xM8 |
| | $J_2$ | | 10 | 10 | 14 | 14 |
| | K[4] | | 4 | 5 | 8 | 11 |
| Length dimensions | L | | 50 | 64 | 90 | 110 |
| | N | | 47,1 | 53,06 | 84,12 | 105,6 |
| | ± rel. to N[3] | | 0,1 | 0,1 | 0,125 | 0,125 |
| | O | | 8 | 12 | 18 | 22,5 |
| | P | | 14 | 21 | 30,5 | 36,5 |
| | R | | 6 | 6 | 9,5 | 11 |
| | S | | 2 | 2 | 3 | 3 |
| | T | | 16 | 16 | 25 | 30 |
| | U | | 2 | 3 | 4 | 5 |
| | V | | 46 | 58 | 82 | 100 |
| | W | | 15 | 17 | 23 | 27 |
| Tightening torque | $M_A$ | Nm | 8,5 | 8,5 | 35 | 69 |

[1] For further torque variations see page 6.13.00
[2] Bore sizes shown in bold print are available ex stock.
[3] Tolerances for customer's parts
[4] 2 x 180°, offset by 90° to the keyways.

**For important technical information see page 6.07.00!**

# Pneumatically actuated single-plate clutch/brake combined units

**Housing plates halves with friction blocks and 12-point securing for machines with high level of load changes in continuous operation**

Ortlinghaus SEIT 1898
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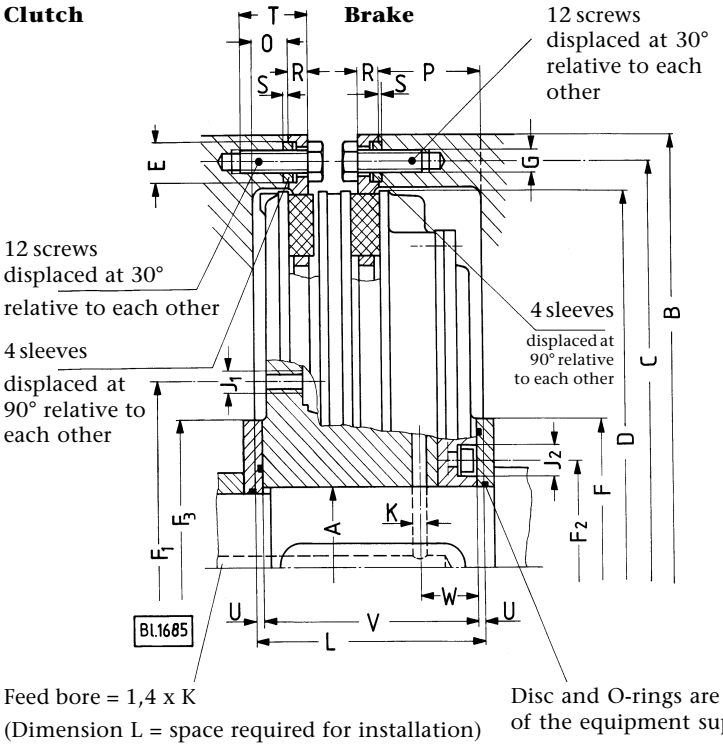
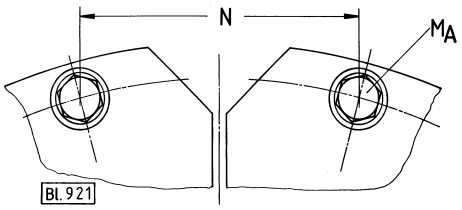



Adequate ventilation apertures should be provided between the suspension screws.

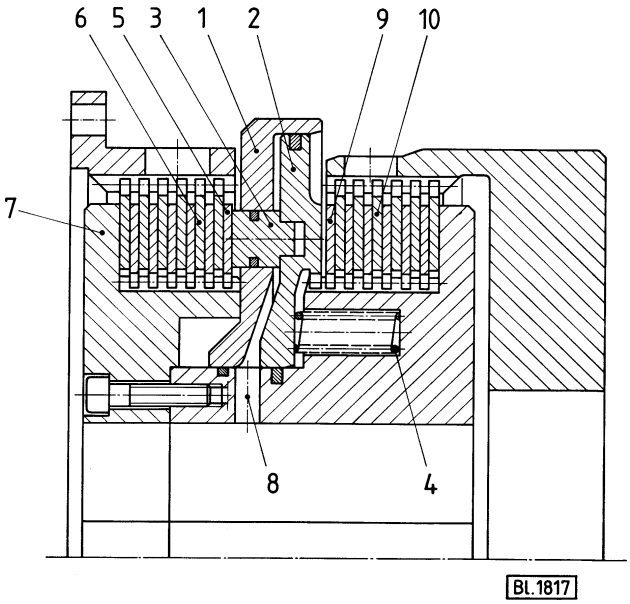



**View X**

To allow fitting and removal of the screws, two recesses offset at 180° to each other are provided in the brake plate. Minimum diameter required for removal of the plates is approx. 1.55 x B.

| Series | | | 0420-349-Size-330000 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | **62** | **67** | **72** | **77** | **80** | **83** | **87** | **90** | **91** | **92** | **93** |
| $M_{stat}$ [1] | Clutch | Nm | 2600 | 3500 | 4900 | 7700 | 10000 | 15000 | 21500 | 29000 | 39000 | 58000 | 80000 |
| $M_{dyn}$ [1] | Brake | Nm | 2100 | 2800 | 3900 | 6100 | 8100 | 11900 | 17400 | 22500 | 29000 | 42000 | 59000 |
| Operating pressure | | bar | | | | | | 5,5 | | | | | |
| $M_{stat}$ [1] | Clutch | Nm | 3000 | 4100 | 5700 | 9000 | 11500 | 17500 | 25000 | 34000 | 45000 | 67000 | 93000 |
| $M_{dyn}$ [1] | Brake | Nm | 2100 | 2800 | 3900 | 6100 | 8100 | 11900 | 17400 | 22500 | 29000 | 42000 | 59000 |
| Operating pressure | | bar | | | | | | 6 | | | | | |
| n max | | $min^{-1}$ | 1500 | 1400 | 1250 | 1100 | 1000 | 850 | 750 | 700 | 630 | 560 | 500 |
| Stroke volume | in new state | $dm^3$ | 0,45 | 0,53 | 0,76 | 1,21 | 1,59 | 2,37 | 3,04 | 4,07 | 5,02 | 6,68 | 8,3 |
| | at max. wear | $dm^3$ | 0,64 | 0,76 | 1,14 | 1,85 | 2,35 | 3,57 | 4,58 | 6,24 | 7,64 | 10,54 | 13,11 |
| J | internal | $kgm^2$ | 0,52 | 0,84 | 1,41 | 2,94 | 5 | 8,8 | 15,5 | 24,2 | 37,25 | 67,25 | 118,15 |
| | external | $kgm^2$ | 0,2 | 0,33 | 0,52 | 1,1 | 1,78 | 3,46 | 6,02 | 9,65 | 12,46 | 21,8 | 39,43 |
| Weight | | kg | 42 | 59 | 80 | 124 | 170 | 240 | 334 | 435 | 534 | 768 | 1079 |
| ØA prebored | | | 45 | 45 | 45 | 65 | 90 | 100 | 125 | 125 | 140 | 150 | 170 |
| ØA max | H7 | | 90 | 95 | 105 | 125 | 145 | 160 | 180 | 200 | 220 | 240 | 270 |
| Keyway | DIN 6885 | | 25x5,4 | 25x5,4 | 28x6,4 | 32x7,4 | 36x8,4 | 40x9,4 | 45x10,4 | 45x10,4 | 50x11,4 | 56x12,4 | 63x12,4 |
| Diameters | B | | 430 | 480 | 530 | 620 | 680 | 770 | 860 | 945 | 1020 | 1140 | 1280 |
| | C JS10 [3] | | 408 | 450 | 500 | 584 | 640 | 725 | 810 | 890 | 965 | 1080 | 1215 |
| | D | | 380 | 420 | 465 | 543 | 593 | 675 | 755 | 830 | 905 | 1015 | 1140 |
| | E H10 [3] | | 18 | 22 | 25 | 25 | 30 | 35 | 40 | 45 | 45 | 50 | 55 |
| | F/F3 | | 160 | 160 | 180 | 225 | 250 | 275 | 300 | 330 | 360 | 400 | 450 |
| | F1 | | 190 | 200 | 230 | 275 | 300 | 345 | 380 | 410 | 450 | 520 | 580 |
| | F2 | | 110 | 115 | 125 | 150 | 175 | 190 | 210 | 230 | 260 | 285 | 320 |
| | G | | M10 | M12 | M14 | M14 | M16 | M20 | M24 | M24 | M24 | M27 | M30 |
| | 3 x J1 | | M8 | M10 | M10 | M12 | M12 | M16 | M16 | M20 | M20 | M24 | M27 |
| | J2 | | 16 | 18,5 | 18,5 | 21 | 26 | 28 | 28 | 28 | 34 | 42 | 42 |
| | K [4] | | 13 | 14 | 16 | 18 | 20 | 21 | 23 | 25 | 30 | 32 | 35 |
| Length dimensions | L | | 122 | 135 | 150 | 170 | 195 | 215 | 240 | 258 | 270 | 305 | 340 |
| | N | | 105,6 | 116,5 | 129,4 | 151,15 | 165,65 | 187,65 | 209,65 | 230,4 | 249,75 | 279,5 | 314,5 |
| | ± rel. to N [3] | | 0,125 | 0,125 | 0,125 | 0,14 | 0,16 | 0,16 | 0,18 | 0,18 | 0,18 | 0,21 | 0,21 |
| | O | | 21 | 23 | 27 | 30 | 32 | 34 | 39 | 43 | 47 | 51 | 57 |
| | P | | 52 | 55 | 60 | 68 | 84 | 90 | 100 | 104 | 108 | 125 | 136 |
| | R | | 11 | 13,5 | 14,5 | 16 | 18 | 21,5 | 24 | 26 | 26 | 30 | 34 |
| | S | | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 10 | 10 | 10 | 10 |
| | T | | 30 | 35 | 40 | 40 | 50 | 60 | 70 | 80 | 80 | 90 | 90 |
| | U | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | V | | 112 | 125 | 140 | 160 | 185 | 205 | 230 | 248 | 260 | 295 | 330 |
| | W | | 27 | 30 | 33 | 37,5 | 44 | 47 | 55 | 60 | 68 | 76 | 85 |
| Tightening torque $M_A$ | | Nm | 69 | 120 | 190 | 190 | 295 | 580 | 1000 | 1000 | 1000 | 1500 | 2000 |

## Operation




## Properties, areas of application

These clutch/brake combined units combine the advantages of the wet-running steel/sinter plates and the problem free actuation of compressed air; i.e. the plate stack suffers practically no wear and compressed air is already available in many factories. They are suitable for the drives of presses, metalforming machine tools, guillotines and similar machines that work in cycles. In particular they are suitable in cases where it would not be economic, or it does not appear appropriate, to make pressure oil available.

## Design characteristics

This series has been developed from the pressure-oil actuated combined units of series 0023 and 0123; it differs from these series externally in terms of its larger actuation cylinder, the greater size being necessary because of the lower operating pressures possible with compressed air.

### Torque ranges

The individual sizes can be supplied in different torque variations for clutch and brake. The clutch is always available in a standard and also in a reinforced version. In this way these units cover the low and medium range of the torque spectrum.

### Application of the brake

In the depressurized state springs (**4**) push piston (**2**) of the actuation cylinder (**1**) in the direction of the brake plates (**5**). Studs (**3**) mounted on the piston (**2**) push the plates (**5/6**) against a stop plate (**7**) so that the brake is applied.

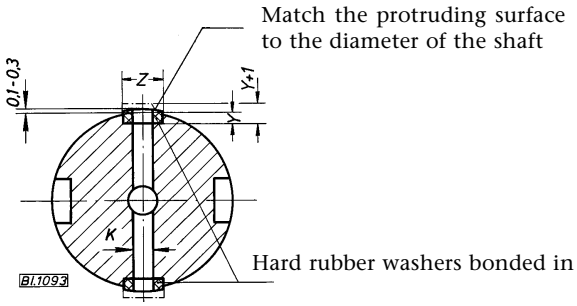
### Engagement of the clutch

Piston (**2**) is subjected to compressed air via the inlet (**8**), the air being supplied in general through the shaft. The piston (**2**) is moved away from the brake plates (**5/6**) until it makes contact with the clutch plates (**9/10**) and thus engages the clutch. In clutch/brake combined units there is no overlap between brake and clutch.

### Fitting variations

The unit is secured to the shaft either with a key and keyway or with a locking assembly. The type of sealing arrangement between the shaft and hub should be selected in accordance with the method of securing.

Alternative way of sealing between shaft and clutch:




| Size | Ø K | Ø Z | Counterboring depth Y |
|---|---|---|---|
| 75 | 8 | 25 | 7 |
| 80 | 10 | 25 | 7 |
| 86 | 13 | 30 | 7 |
| 90 | 16 | 30 | 7 |

### Lubrication, cooling

The combined unit is fitted in a sealed housing which does not rotate; housings can be supplied, if required. Lubrication and cooling is carried out by splash lubrication, both circulation of oil through the housing or internal oiling through the shaft, are possible, the particular method being selected in accordance with the thermal load. Appropriate rotary inlets for compressed air and oil are available.

# Possible torque variations for clutch and brake ...

## of series 0424, standard version

| Series 0424-.1.-..-000000 | $M_{stat}$ clutch [Nm] | | $M_{dyn}$ brake [Nm] |
|---|---|---|---|
| | p = 5,5 bar | p = 6 bar | |
| **01.-75** | 3400 | 4000 | 2000 |
| **11.-75** | 4000 | 4600 | 1600 |
| **21.-75** | 4700 | 5300 | 1200 |
| **31.-75** | 5300 | 5900 | 900 |
| **01.-80** | 6400 | 7600 | 4000 |
| **11.-80** | 7700 | 8900 | 3300 |
| **21.-80** | 8900 | 10100 | 2600 |
| **31.-80** | 10200 | 11400 | 1800 |
| **01.-86** | 10300 | 12400 | 8200 |
| **11.-86** | 12800 | 14900 | 6700 |
| **21.-86** | 15200 | 17400 | 5200 |
| **31.-86** | 17700 | 19900 | 3700 |
| **01.-90** | 20900 | 25300 | 16400 |
| **11.-90** | 23600 | 28000 | 14700 |
| **21.-90** | 29100 | 33600 | 11400 |
| **31.-90** | 34700 | 39100 | 8200 |

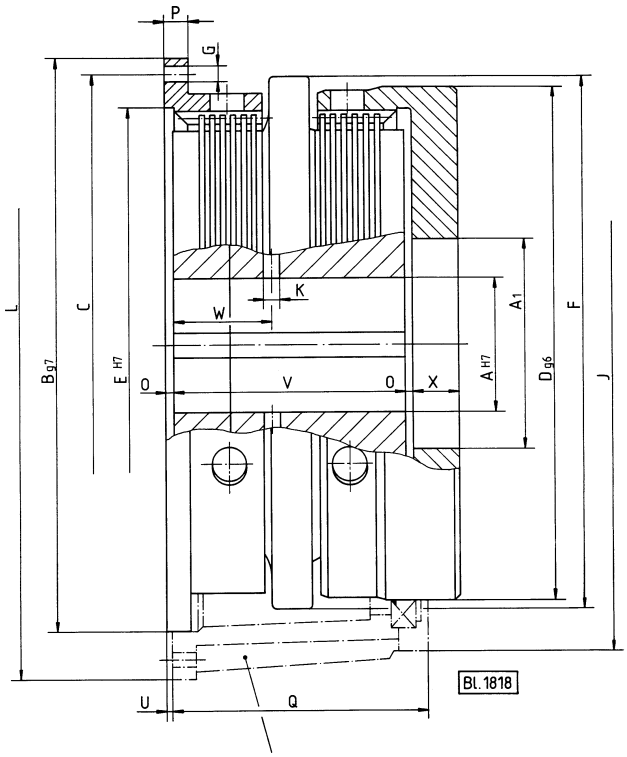
## of series 0424, reinforced version

| Series 0424-.4.-..-000000 | $M_{stat}$ clutch [Nm] | | $M_{dyn}$ brake [Nm] |
|---|---|---|---|
| | p = 5,5 bar | p = 6 bar | |
| **04.-75** | 4800 | 5700 | 2000 |
| **14.-75** | 5700 | 6700 | 1600 |
| **24.-75** | 6700 | 7600 | 1200 |
| **34.-75** | 7600 | 8500 | 900 |
| **04.-80** | 9200 | 10900 | 4000 |
| **14.-80** | 11000 | 12700 | 3300 |
| **24.-80** | 12800 | 14500 | 2600 |
| **34.-80** | 14600 | 16300 | 1800 |
| **04.-86** | 14700 | 17800 | 8200 |
| **14.-86** | 18200 | 21300 | 6700 |
| **24.-86** | 21800 | 24900 | 5200 |
| **34.-86** | 25300 | 28400 | 3700 |
| **04.-90** | 29800 | 36100 | 16400 |
| **14.-90** | 33800 | 40100 | 14700 |
| **24.-90** | 41700 | 48000 | 11400 |
| **34.-90** | 49600 | 55900 | 8200 |

# Pneumatically actuated multi-plate clutch/brake combined units
**for wet-running**

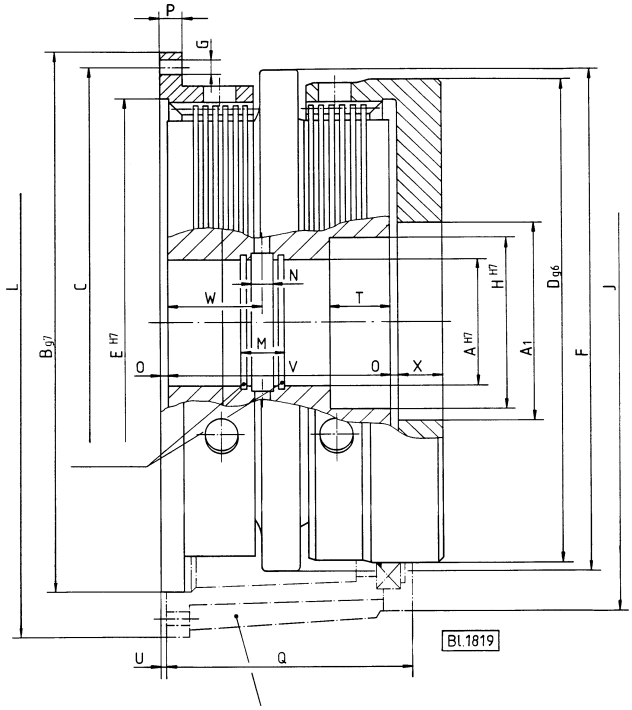
Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE

**Version with key**




Housing cover

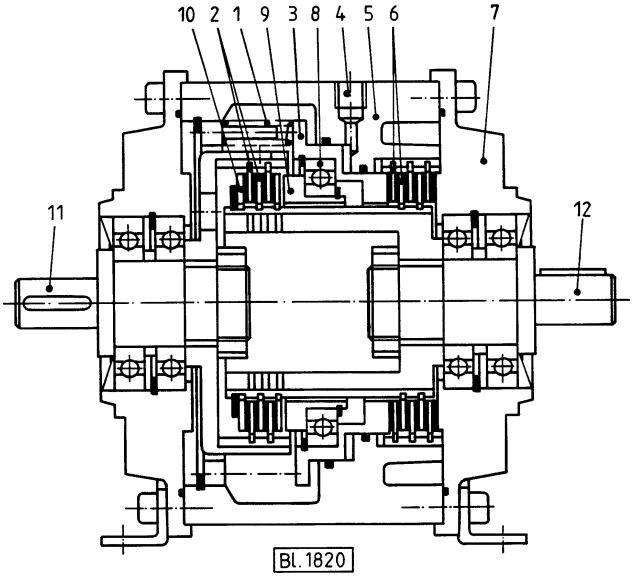
**Version with locking assemblies**




Housing cover

| Series | | | Standard version 0424-.1.-Size-600000 | | | | Reinforced version 0424-.4.-Size-600000 | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | 75 | 80 | 86 | 90 | 75 | 80 | 86 | 90 |
| $M_{stat}$ Clutch | | Nm | 3400 | 6400 | 10300 | 20900 | 4800 | 9200 | 14700 | 29800 |
| $M_{dyn}$ Brake | | Nm | 2000 | 4000 | 8200 | 16400 | 2000 | 4000 | 8200 | 16400 |
| Operating pressure | | bar | | 5,5 | | | | 5,5 | | |
| $M_{stat}$ Clutch | | Nm | 4000 | 7600 | 12400 | 25300 | 5700 | 10900 | 17800 | 36100 |
| $M_{dyn}$ Brake | | Nm | 2000 | 4000 | 8200 | 16400 | 2000 | 4000 | 8200 | 16400 |
| Operating pressure | | bar | | 6 | | | | 6 | | |
| n max | | $min^{-1}$ | 560 | 450 | 355 | 280 | 560 | 450 | 355 | 280 |
| Stroke volume | | $dm^3$ | 0,45 | 0,73 | 1,2 | 2,25 | 0,64 | 1,1 | 1,7 | 3,2 |
| J | internal | $kgm^2$ | 0,36 | 1,2 | 3,1 | 8,2 | 0,39 | 1,3 | 3,4 | 9 |
| Weight | approx. | kg | 70 | 130 | 225 | 430 | 80 | 165 | 285 | 535 |
| ØA prebored | | | 60 | 70 | 100 | 115 | 60 | 70 | 100 | 115 |
| Diameters | A max H7 | | 95 | 130 | 160 | 200 | 95 | 130 | 160 | 200 |
| | A1 | | 120 | 155 | 160 | 200 | 120 | 155 | 160 | 200 |
| | B | | 330 | 425 | 500 | 630 | 330 | 425 | 500 | 630 |
| | C | | 310 | 400 | 470 | 590 | 310 | 400 | 470 | 590 |
| | D | | 290 | 380 | 440 | 560 | 290 | 380 | 440 | 560 |
| | E | | 275 | 350 | 415 | 530 | 275 | 350 | 415 | 530 |
| | F | | 311 | 388 | 468 | 592 | 311 | 388 | 468 | 592 |
| | G (12x30°) | | 11 | 14 | 18 | 22 | 11 | 14 | 18 | 22 |
| | J | | 367 | 464 | 522 | 655 | 367 | 464 | 522 | 655 |
| | K | | 8 | 10 | 13 | 16 | 8 | 10 | 13 | 16 |
| | L | | 410 | 505 | 580 | 710 | 410 | 505 | 580 | 71o |
| Ringfeder RfN 7012 locking assembly (maximum) | | | 95 x135 | 120 x165 | 150 x200 | 190 x250 | 95 x135 | 120 x165 | 150 x200 | 190 x250 |
| Length dimensions | M | | 24 | 28 | 34 | 36 | 24 | 28 | 34 | 36 |
| | N | | 9 | 11 | 14 | 17 | 9 | 11 | 14 | 17 |
| | O | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | P | | 12 | 16 | 20 | 25 | 12 | 16 | 20 | 25 |
| | Q | | 155 | 195 | 220 | 245 | 176 | 220 | 252 | 281 |
| | T | | 40 | 48 | 53 | 61 | 40 | 48 | 53 | 69 |
| | U | | 4 | 4 | 5 | 5 | 4 | 4 | 5 | 5 |
| | V | | 135 | 170 | 205 | 230 | 156 | 196 | 237 | 266 |
| | W | | 57 | 73 | 91,5 | 99,5 | 57 | 73 | 91,5 | 99,5 |
| | X max | | 40 | 45 | 55 | 65 | 40 | 45 | 55 | 65 |

## Operation




### Application of the brake

Springs (**1**) press against piston (**3**) in the housing (**5**) and push the piston against the brake plates (**6**), which are supported by the flange (**7**). The figure shows the output shaft (**12**) in the brake-applied position.

### Engagement of the clutch

Piston (**3**) is subjected to compressed air via the air inlet (**4**). Piston (**3**) moves away from the brake plates (**6**) and presses with the aid of ball-bearing (**8**) thrust ring (**9**) against the clutch plates (**2**), which are supported by stop plate (**10**). The clutch engages and connects input shaft (**11**) with output shaft (**12**).
There is no overlap between brake and clutch in clutch/brake combined units.

## Properties, areas of application

A high number of switching cycles with short switching times and excellent repeatable results can be achieved with clutch/brake combined units. For this reason these units are particularly suitable for carrying out the rapid, precise movement operations that are required in, for example, packing, cutting processes, and mechanical feeds, in particular, the manufacture of packages.

The short switching time and the high level of repeatable results result from the pneumatic actuation of the clutch/brake combined with a valve that switches rapidly and precisely.

Overlap is not possible between clutch and brake since the brake is applied by spring pressure, which does not become effective until the clutch has been disengaged.

## Design characteristics

### Frictional system, lubrication, cooling

The frictional system consists of plates with the friction combination steel/sintered lining for wet-running (oil lubrication). This system ensures extremely low wear and thereby long service life. The oil lubrication within the fully encapsulated housing brings about very good transmission of heat from the plates to the surface of the housing. If the ribbed housing is externally cooled, the permissible friction work and thereby the permissible number of switching cycles can be increased by a considerable amount.

### Design variations

The different designs of the input and output ends enable the units to be fitted in many different ways, and can be combined together as per the table of dimensions.

Flange dimensions and centre-to-centre distances are matched to motor sizes 100, 112 and 132.

## Numbering key for design variations

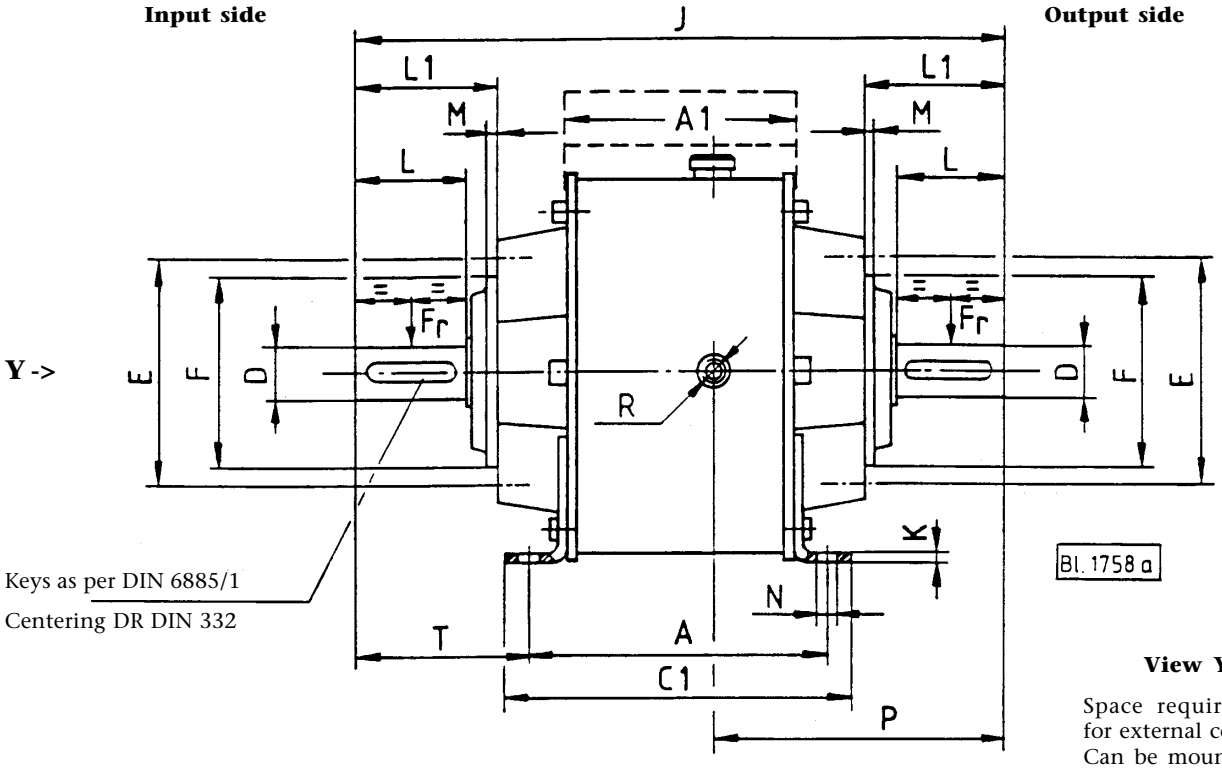
**0404 - . . . - 13/17 - 000000**

| | | | | |
|---|---|---|---|---|
| Form of construction | **0** | | | Compressed air connection G1/8, with feet, with external cooling |
| | **1** | | | Compressed air connection G1/8, with feet, without external cooling |
| | **5** | | | Compressed air connection G1/8, without feet, with external cooling |
| | **6** | | | Compressed air connection G1/8, without feet, without external cooling |
| Input side | | **0** | | Shaft |
| | | **1** | | Shaft and positive flange Ø160 mm (Ø300 mm with size 17) |
| | | **2** | | Shaft and positive flange Ø200 mm |
| | | **3** | | Shaft and positive flange Ø250 mm |
| | | **5** | | Hollow shaft |
| | | **6** | | Hollow shaft and negative flange Ø160 mm (Ø300 mm with size 17) |
| | | **7** | | Hollow shaft and negative flange Ø200 mm |
| | | **8** | | Hollow shaft and negative flange Ø250 mm |
| Output side | | | **0** | Shaft |
| | | | **1** | Shaft and positive flange Ø160 mm (Ø300 mm with size 17) |
| | | | **2** | Shaft and positive flange Ø200 mm |
| | | | **3** | Shaft and positive flange Ø250 mm |
| | | | **5** | Hollow shaft |
| | | | **6** | Hollow shaft and negative flange Ø160 mm (Ø300 mm with size 17) |
| | | | **7** | Hollow shaft and negative flange Ø200 mm |
| | | | **8** | Hollow shaft and negative flange Ø250 mm |

# Pneumatically actuated multi-plate clutch/brake combined units

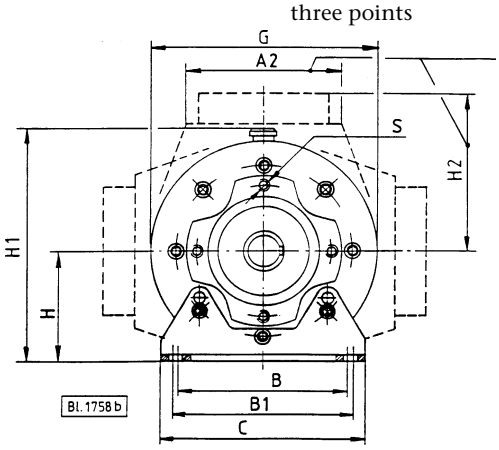
**for wet-running in a closed housing**
**Shaft version without flange**

Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE




**View Y**

Space requirement for external cooling Can be mounted as desired at one of three points



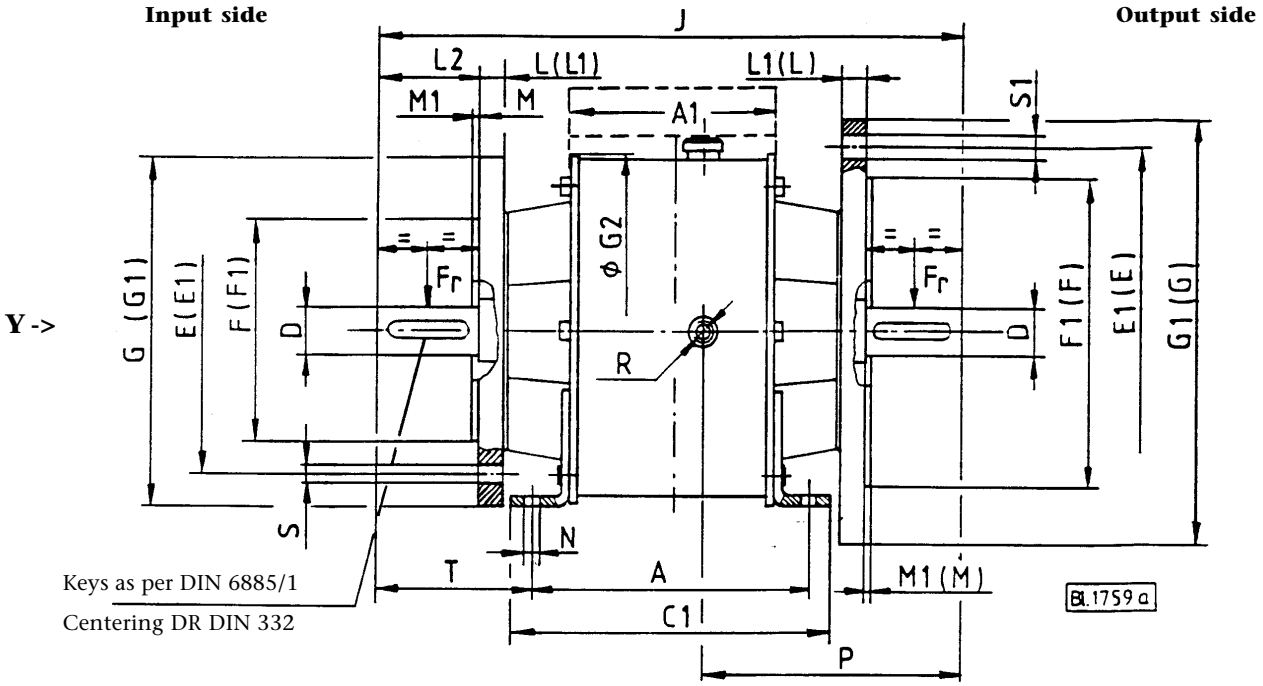

| Series / Size | | | 0404-100-Size-000000 13 | 17 |
|---|---|---|---|---|
| $M_{dyn}$ | Clutch | Nm | 63 | 125 |
| $M_{stat}$ | Clutch | Nm | 90 | 180 |
| $M_{dyn}$ | Brake | Nm | 63 | 125 |
| Operating pressure | | bar | 6 | 6 |
| Back pressure | | bar | 2,4 | 2,3 |
| n max | | $min^{-1}$ | 1500 | 1500 |
| Stroke volume | | $cm^3$ | 5 | 15 |
| J | input side | $kgcm^2$ | 38,5 | 110 |
| | output side | $kgcm^2$ | 38 | 108 |
| Fr[1)] | | N | 800 | 1250 |
| Weight | approx. | kg | 22 | 45 |
| Diameters | D k6 | | 28 | 38 |
| | E | | 120 | 145 |
| | F h8 | | 100 | 120 |
| | G | | 198 | 245 |
| | N | | 11 | 13 |
| | R | | G 1/8 | G 1/8 |
| | S | | 4xM10 | 4xM12 |
| Length dimensions | A | | 160 | 185 |
| | $A_1$ | | 126 | 180 |
| | $A_2$ | | 143 | 177 |
| | B | | 150 | 185 |
| | $B_1$ | | 160 | 195 |
| | C | | 180 | 223 |
| | $C_1$ | | 184 | 215 |
| | H | | 100/112 | 132 |
| | $H_1$ | | 213/225 | 270 |
| | $H_2$ | | 148 | 196 |
| | J | | 344 | 420 |
| | K | | 4 | 5 |
| | L | | 60 | 80 |
| | $L_1$ | | 77 | 100 |
| | $L_2$ | | 60 | 80 |
| | M | | 5 | 9 |
| | P | | 155 | 189 |
| | T | | 92 | 117,5 |

[1)] In relation to shaft journal centre

# Pneumatically actuated multi-plate clutch/brake combined units

**for wet-running in a closed housing**
**Shaft version with flange**

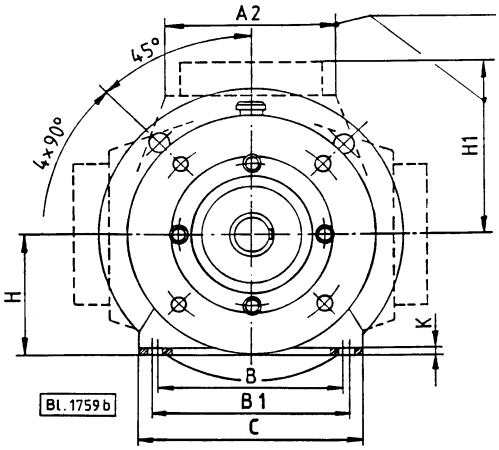
Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE




| Series<br>Size | | | 0404-1..-Size-000000<br>13 | <br>17 |
|---|---|---|---|---|
| $M_{dyn}$ | Clutch | Nm | 63 | 125 |
| $M_{stat}$ | Clutch | Nm | 90 | 180 |
| $M_{dyn}$ | Brake | Nm | 63 | 125 |
| Operating pressure | | bar | 6 | 6 |
| Back pressure | | bar | 2,4 | 2,3 |
| $n_{max}$ | | $min^{-1}$ | 1500 | 1500 |
| Stroke volume | | $cm^3$ | 5 | 15 |
| J | input side | $kgcm^2$ | 38,5 | 110 |
| | output side | $kgcm^2$ | 38 | 108 |
| $Fr^{1)}$ | | N | 800 | 1250 |
| Weight (without flange) | | kg | 28 | 45 |
| Diameters | D k6 | | 28 | 38 |
| | E | | 165 | 215 |
| | $E_1$ | | 215 | 265 |
| | F j7 | | 130 | 180 |
| | $F_1$ j7 | | 180 | 230 |
| | G | | 200 | 250 |
| | $G_1$ | | 250 | 300 |
| | $G_2$ | | 198 | 245 |
| | N | | 11 | 13 |
| | R | | G 1/8 | G 1/8 |
| | S | | 13 | 13 |
| | $S_1$ | | 13 | 13 |
| Length dimensions | A | | 160 | 185 |
| | $A_1$ | | 126 | 180 |
| | $A_2$ | | 143 | 177 |
| | B | | 150 | 185 |
| | $B_1$ | | 160 | 195 |
| | C | | 180 | 223 |
| | $C_1$ | | 184 | 215 |
| | H | | 100/112 | 132 |
| | $H_1$ | | 148 | 196 |
| | J | | 344 | 420 |
| | K | | 4 | 5 |
| | L | | 12 | 12 |
| | $L_1$ | | 12 | 12 |
| | $L_2$ | | 60 | 80 |
| | M | | 3,5 | 4 |
| | $M_1$ | | 4 | 4 |
| | P | | 155 | 189 |
| | T | | 92 | 117,5 |

**View Y**

Space requirement for external cooling. Can be mounted as desired at one of three points

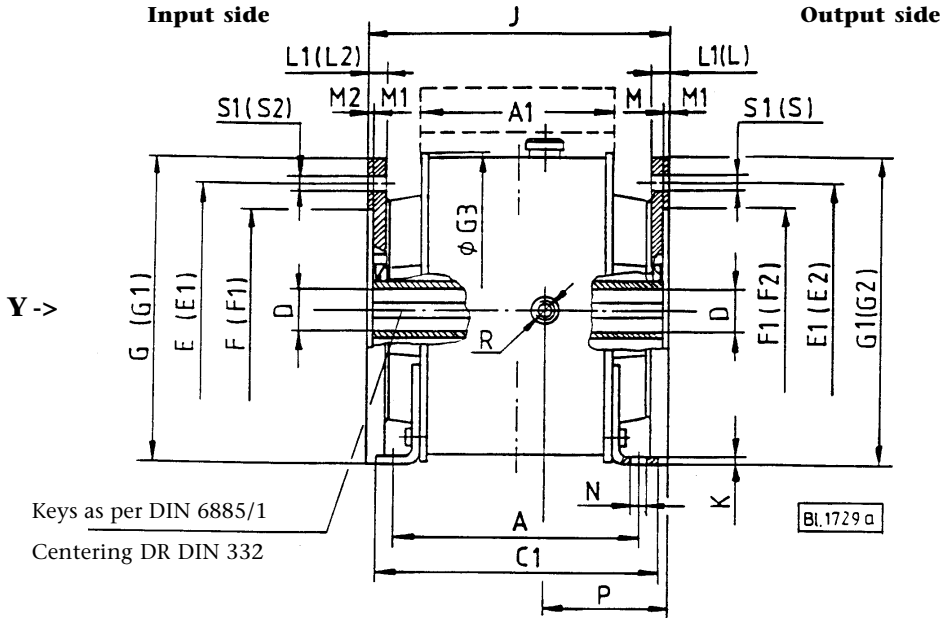



[1)] In relation to shaft journal centre

# Pneumatically actuated multi-plate clutch/brake combined units

**for wet-running in a closed housing**
**Hollow shaft version with flange**

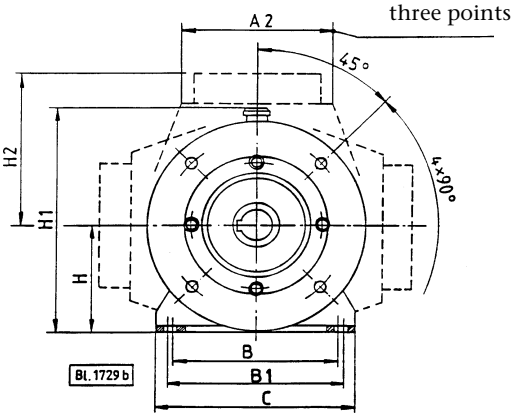
Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE




| Series<br>Size | | | 0404-1..-Size-000000<br>13 | <br>17 |
|---|---|---|---|---|
| Mdyn | Clutch | Nm | 63 | 125 |
| Mstat | Clutch | Nm | 90 | 180 |
| Mdyn | Brake | Nm | 63 | 125 |
| Operating pressure | | bar | 6 | 6 |
| Back pressure | | bar | 2,4 | 2,3 |
| n max | | $min^{-1}$ | 1500 | 1500 |
| Stroke volume | | $cm^3$ | 5 | 15 |
| J | input side | $kgcm^2$ | 39,5 | 112 |
| | output side | $kgcm^2$ | 39 | 110 |
| Weight (without flange) | | kg | 22 | 43,5 |
| Diameters | D G7 | | 28 | 38 |
| | E | | 130 | - |
| | E1 | | 165 | 215 |
| | E2 | | 215 | 265 |
| | F | | 111 | - |
| | F1 | | 131 | 181 |
| | F2 | | 181 | 231 |
| | G | | 160 | - |
| | G1 | | 200 | 250 |
| | G2 | | 250 | 300 |
| | G3 | | 198 | 245 |
| | N | | 11 | 13 |
| | R | | G 1/8 | G 1/8 |
| | S | | 9 | - |
| | S1 | | 11 | 13 |
| | S2 | | 13 | 13 |
| Length dimensions | A | | 160 | 185 |
| | A1 | | 126 | 180 |
| | A2 | | 143 | 177 |
| | B | | 150 | 185 |
| | B1 | | 160 | 195 |
| | C | | 180 | 223 |
| | C1 | | 184 | 215 |
| | H | | 100/112 | 132 |
| | H1 | | 213/225 | 270 |
| | H2 | | 148 | 196 |
| | J | | 198 | 238 |
| | K | | 4 | 5 |
| | L | | 9 | - |
| | L1 | | 12 | 12 |
| | L2 | | 12 | 12 |
| | M | | 4 | - |
| | M1 | | 5 | 5 |
| | M2 | | 6 | 5 |
| | P | | 78 | 98 |

**View Y**

Space requirement for external cooling. Can be mounted as desired at one of three points



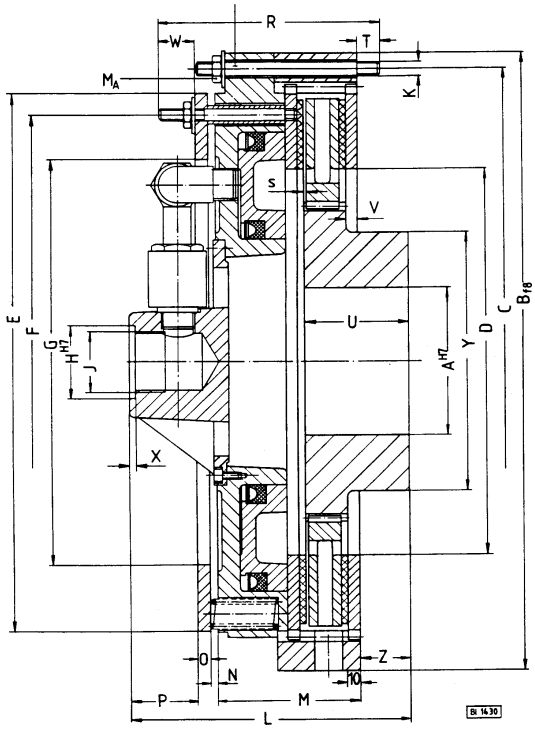
**Only for dry-running. It is essential that the friction surfaces are kept free of lubricants!**
**Can also be supplied in friction block version.**
Technical details on request.

Clutches for higher torques on request.
Maximum permissible operating pressure: $p_{max}$ = 6 bar.

**Tolerances** for bore and keyway see section 1 "Technical information".

**Rotary inlets for compressed air** - see page 6.57.00.

12 screws displaced at 30° relative to each other




[1] Spring back pressure

| Series / Size | | | 43 | 51 | 59 | 66 | 72 | 75 | 78 | 80 | 84 | 85 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0442-1.5-Size-000000** | | | | | | | | | |
| Mstat **0442-105-** 0,8 bar[1] | | Nm | 250 | 500 | 940 | 1750 | 2900 | 3700 | 5600 | 7400 | 10500 | 14600 |
| Mstat **0442-115-** 1,8 bar[1] | | Nm | 190 | 375 | 740 | 1450 | 2100 | 2950 | 4150 | 5850 | 8300 | 11700 |
| Mstat **0442-125-** 2,7 bar[1] | | Nm | 150 | 300 | 550 | 1150 | 1750 | 2350 | 3150 | 4700 | 6200 | 8800 |
| Operating pressure | | bar | | | | | 5,5 | | | | | |
| Mstat **0442-105-** 0,8 bar[1] | | Nm | 270 | 550 | 1050 | 2000 | 3000 | 4100 | 6200 | 8200 | 11700 | 16400 |
| Mstat **0442-115-** 1,8 bar[1] | | Nm | 220 | 470 | 830 | 1750 | 2600 | 3500 | 5300 | 6800 | 9400 | 13500 |
| Mstat **0442-125-** 2,7 bar[1] | | Nm | 175 | 350 | 650 | 1350 | 2000 | 2800 | 3800 | 5300 | 7400 | 10500 |
| Operating pressure | | bar | | | | | 6 | | | | | |
| n max | | $min^{-1}$ | 2800 | 2240 | 1700 | 1450 | 1250 | 1120 | 1000 | 850 | 750 | 670 |
| Stroke volume | in new state | $dm^3$ | 0,024 | 0,055 | 0,084 | 0,177 | 0,243 | 0,277 | 0,35 | 0,379 | 0,511 | 0,798 |
| | at max. wear | $dm^3$ | 0,052 | 0,102 | 0,169 | 0,34 | 0,507 | 0,603 | 0,769 | 0,97 | 1,268 | 2,23 |
| J | internal | $kgm^2$ | 0,004 | 0,01 | 0,031 | 0,069 | 0,146 | 0,216 | 0,416 | 0,768 | 1,364 | 2,615 |
| | external | $kgm^2$ | 0,028 | 0,068 | 0,207 | 0,424 | 0,815 | 1,472 | 2,359 | 4,975 | 9,083 | 15,553 |
| Weight | | kg | 6,8 | 11,3 | 20,5 | 33 | 46 | 63,5 | 85,5 | 124 | 172 | 244 |
| Diameters | A max | | 55 | 75 | 100 | 130 | 155 | 170 | 207 | 225 | 285 | 285 |
| | B | | 195 | 235 | 300 | 360 | 405 | 455 | 505 | 590 | 670 | 740 |
| | C | | 185 | 223 | 284 | 340 | 385 | 430 | 480 | 562 | 637 | 708 |
| | D | | 118 | 140 | 185 | 220 | 255 | 285 | 315 | 360 | 440 | 460 |
| | E | | 167 | 200 | 260 | 309 | 354 | 394 | 440 | 507 | 590 | 650 |
| | F | | 156 | 188 | 238 | 289 | 325 | 365 | 405 | 470 | 542 | 592 |
| | G | | 130 | 156 | 205 | 240 | 270 | 320 | 350 | 420 | 490 | 530 |
| | H | | 22 | 30 | 30 | 35 | 45 | 60 | 60 | 60 | 60 | 75 |
| | J x 1,5 | | M16 | M22 | M22 | M27 | M35 | M50 | M50 | M50 | M50 | M65 |
| | K | | M5 | M6 | M8 | M10 | M10 | M12 | M12 | M14 | M16 | M16 |
| | Y | | 75 | 95 | 125 | 160 | 190 | 200 | 240 | 270 | 330 | 330 |
| Length dimensions | L | | 103,5 | 119 | 137,25 | 160 | 173,75 | 190,5 | 219 | 226,75 | 244,5 | 282 |
| | M | | 58,5 | 66,5 | 77,25 | 86,75 | 98 | 105,75 | 111,75 | 126,25 | 140,25 | 160 |
| | N | | 3,5 | 3,5 | 4,25 | 5 | 6 | 6 | 6 | 7 | 8 | 8,5 |
| | O | | 4 | 5 | 7 | 8 | 8 | 9 | 10 | 12 | 13 | 14 |
| | P | | 26 | 32,5 | 30,75 | 38 | 40 | 52 | 51 | 59,5 | 56,5 | 67,5 |
| | R | | 85 | 95 | 112,25 | 129,5 | 142,5 | 156,75 | 169,25 | 182,25 | 212,25 | 229 |
| | s air gap | | 0,5 | 0,5 | 0,5 | 0,65 | 0,65 | 0,5 | 0,7 | 0,5 | 1 | 1 |
| | T | | 6,5 | 7,5 | 10 | 12 | 12 | 15 | 15 | 18 | 20 | 20 |
| | U | | 32 | 35 | 45 | 52 | 57 | 56 | 82 | 70 | 80 | 90 |
| | V | | 4,5 | 5 | 5,5 | 4,75 | 6,25 | 8,25 | 8,75 | 11 | 8,25 | 13 |
| | W | | 12,5 | 12,5 | 13,75 | 17,5 | 18,5 | 21 | 26,5 | 19,5 | 31,5 | 26,5 |
| | X | | 3 | 3 | 3 | 3 | 4 | 5 | 5 | 5 | 5 | 5 |
| | Z | | 11,5 | 11,5 | 18 | 22,25 | 21,75 | 17,75 | 40,25 | 22 | 26,75 | 32 |
| Tightening torque | $M_A$ | Nm | 8,5 | 14 | 35 | 69 | 69 | 120 | 120 | 190 | 295 | 295 |

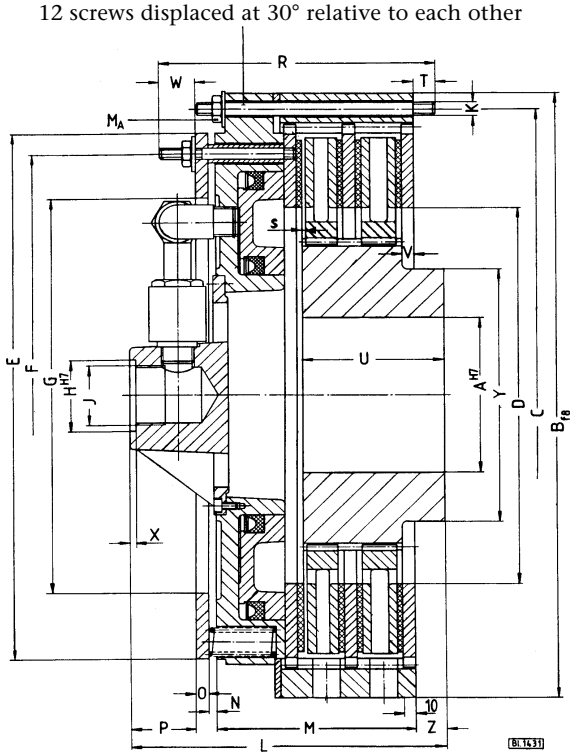
**Only for dry-running. It is essential that the friction surfaces are kept free of lubricants! Can also be supplied in friction block version.**

Technical details on request.
Clutches for higher torques on request.
Maximum permissible operating pressure: $p_{max}$ = 6 bar.

**Tolerances** for bore and keyway see section 1 "Technical information".

**Rotary inlets for compressed air** - see page 6.57.00.

12 screws displaced at 30° relative to each other



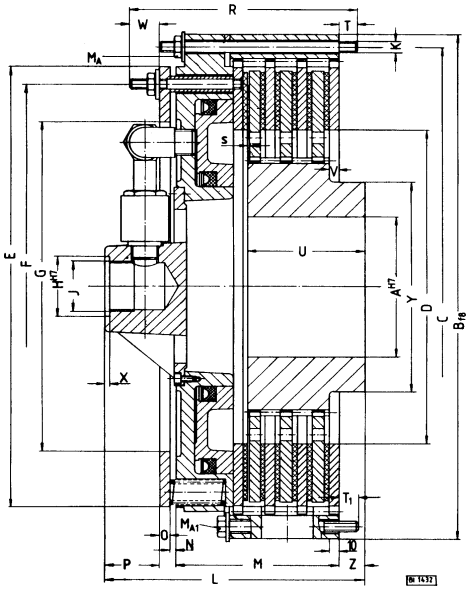

[1] Spring back pressure

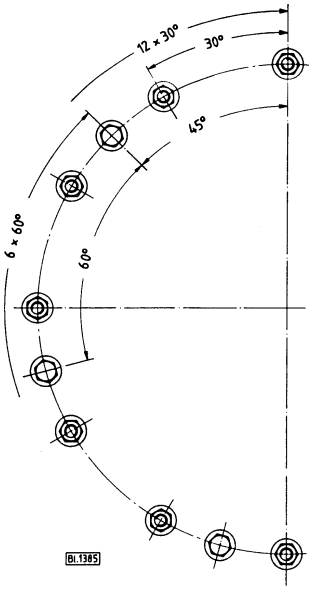
| Series | | | 0442 - 2.5-Size-000000 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | **43** | **51** | **59** | **66** | **72** | **75** | **78** | **80** | **84** | **85** |
| Mstat **0442-205-** 0,8 bar[1] | | Nm | 500 | 1000 | 1850 | 3750 | 5600 | 7400 | 11100 | 14600 | 21000 | 29300 |
| Mstat **0442-215-** 1,8 bar[1] | | Nm | 375 | 740 | 1450 | 3000 | 4200 | 5900 | 8300 | 11700 | 16400 | 23500 |
| Mstat **0442-225-** 2,7 bar[1] | | Nm | 300 | 620 | 1100 | 2200 | 3300 | 4700 | 6200 | 8800 | 12300 | 17600 |
| Operating pressure | | bar | | | | | 5,5 | | | | | |
| Mstat **0442-205-** 0,8 bar[1] | | Nm | 530 | 1100 | 2100 | 4100 | 6200 | 8200 | 12300 | 16400 | 23500 | 33000 |
| Mstat **0442-215-** 1,8 bar[1] | | Nm | 440 | 880 | 1650 | 3300 | 5200 | 6800 | 10000 | 13500 | 18700 | 27000 |
| Mstat **0442-225-** 2,7 bar[1] | | Nm | 350 | 700 | 1300 | 2600 | 4400 | 5400 | 7400 | 10500 | 14600 | 21000 |
| Operating pressure | | bar | | | | | 6 | | | | | |
| n max | | $min^{-1}$ | 2800 | 2240 | 1700 | 1450 | 1250 | 1120 | 1000 | 850 | 750 | 670 |
| Stroke volume | in new state | $dm^3$ | 0,024 | 0,055 | 0,09 | 0,198 | 0,27 | 0,306 | 0,39 | 0,427 | 0,565 | 0,869 |
| | at max. wear | $dm^3$ | 0,052 | 0,102 | 0,169 | 0,34 | 0,507 | 0,603 | 0,769 | 0,97 | 1,268 | 2,23 |
| J | internal | $kgm^2$ | 0,008 | 0,021 | 0,061 | 0,134 | 0,285 | 0,43 | 0,784 | 1,527 | 2,706 | 5,207 |
| | external | $kgm^2$ | 0,039 | 0,092 | 0,277 | 0,576 | 1,078 | 1,969 | 3,199 | 6,914 | 12,108 | 20,696 |
| Weight | | kg | 9,7 | 16 | 29 | 45,5 | 64 | 88,5 | 119 | 179 | 244 | 346 |
| Diameters | A max | | 55 | 75 | 100 | 130 | 155 | 170 | 207 | 225 | 285 | 285 |
| | B | | 195 | 235 | 300 | 360 | 405 | 455 | 505 | 590 | 670 | 740 |
| | C | | 185 | 223 | 284 | 340 | 385 | 430 | 480 | 562 | 637 | 708 |
| | D | | 118 | 140 | 185 | 220 | 255 | 285 | 315 | 360 | 440 | 460 |
| | E | | 167 | 200 | 260 | 309 | 354 | 394 | 440 | 507 | 590 | 650 |
| | F | | 156 | 188 | 238 | 289 | 325 | 365 | 405 | 470 | 542 | 592 |
| | G | | 130 | 156 | 205 | 240 | 270 | 320 | 350 | 420 | 490 | 530 |
| | H | | 22 | 30 | 30 | 35 | 45 | 60 | 60 | 60 | 60 | 75 |
| | J x 1,5 | | M16 | M22 | M22 | M27 | M35 | M50 | M50 | M50 | M50 | M65 |
| | K | | M5 | M6 | M8 | M10 | M10 | M12 | M12 | M14 | M16 | M16 |
| | Y | | 75 | 95 | 125 | 160 | 190 | 200 | 240 | 270 | 330 | 330 |
| Length dimensions | L | | 130,5 | 149,5 | 167,5 | 192,7 | 212 | 235 | 250,25 | 282,25 | 305 | 352,5 |
| | M | | 82,5 | 93,5 | 108,25 | 121,2 | 138 | 149 | 158,5 | 180 | 200 | 225 |
| | N | | 3,5 | 3,5 | 4,25 | 5 | 6 | 6 | 6 | 7 | 8 | 8,5 |
| | O | | 4 | 5 | 7 | 8 | 8 | 9 | 10 | 12 | 13 | 14 |
| | P | | 26 | 32,5 | 30,75 | 38 | 40 | 52 | 51 | 59,5 | 56,5 | 67,5 |
| | R | | 109 | 122 | 143,25 | 163,7 | 182,5 | 200 | 216 | 236,5 | 272,5 | 294 |
| | s air gap | | 0,5 | 0,5 | 0,75 | 1,2 | 1,2 | 1 | 1,2 | 1 | 1,5 | 1,5 |
| | T | | 6,5 | 7,5 | 10 | 12 | 12 | 15 | 15 | 18 | 20 | 20 |
| | U | | 59 | 65,5 | 75 | 84 | 95 | 100 | 113 | 125 | 140 | 160 |
| | V | | 4,5 | 5 | 5,75 | 6,5 | 7 | 8,5 | 8,25 | 11,25 | 3,5 | 13,5 |
| | W | | 12,5 | 12,5 | 13,75 | 17,5 | 18,5 | 21 | 26,5 | 19,5 | 31,5 | 26,5 |
| | X | | 3 | 3 | 3 | 3 | 4 | 5 | 5 | 5 | 5 | 5 |
| | Z | | 14,5 | 15 | 17,25 | 20,5 | 20 | 19 | 24,75 | 23,75 | 27,5 | 37,5 |
| Tightening torque | $M_A$ | Nm | 8,5 | 14 | 35 | 69 | 69 | 120 | 120 | 190 | 295 | 295 |

**Only for dry-running. It is essential that the friction surfaces are kept free of lubricants!**
**Can also be supplied in friction block version.**

Maximum permissible operating pressure: $p_{max}$ = 6 bar.

**Tolerances** for bore and keyway see section 1 "Technical information".




**Rotary inlets for compressed air** - see page 6.57.00.

Technical details on request.

Clutches for higher torques on request.

[1] Spring back pressure

| Series / Size | | | 0442 - 3.5-Size-000000 43 | 51 | 59 | 66 | 72 | 75 | 78 | 80 | 84 | 85 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mstat **0442-305-** 0,8 bar[1] | | Nm | 740 | 1450 | 2800 | 5600 | 8300 | 11100 | 16400 | 22300 | 32000 | 44000 |
| Mstat **0442-315-** 1,8 bar[1] | | Nm | 560 | 1150 | 2200 | 4400 | 6600 | 8800 | 13100 | 17600 | 23500 | 35000 |
| Mstat **0442-325-** 2,7 bar[1] | | Nm | 450 | 910 | 1650 | 3300 | 4900 | 7000 | 9400 | 13500 | 18700 | 27000 |
| Operating pressure | | bar | | | | | 5,5 | | | | | |
| Mstat **0442-305-** 0,8 bar[1] | | Nm | 820 | 1650 | 3050 | 6200 | 9400 | 12300 | 18700 | 24600 | 35000 | 49200 |
| Mstat **0442-315-** 1,8 bar[1] | | Nm | 660 | 1350 | 2500 | 4900 | 7600 | 10000 | 14600 | 19900 | 28000 | 40000 |
| Mstat **0442-325-** 2,7 bar[1] | | Nm | 530 | 1050 | 2000 | 4000 | 5900 | 8200 | 11100 | 15800 | 21700 | 30500 |
| Operating pressure | | bar | | | | | 6 | | | | | |
| n max | | $min^{-1}$ | 2800 | 2240 | 1700 | 1450 | 1250 | 1120 | 1000 | 850 | 750 | 670 |
| Stroke volume | in new state | $dm^3$ | 0,024 | 0,055 | 0,09 | 0,198 | 0,27 | 0,306 | 0,39 | 0,379 | 0,565 | 0,869 |
| | at max. wear | $dm^3$ | 0,052 | 0,102 | 0,169 | 0,34 | 0,507 | 0,603 | 0,769 | 0,97 | 1,268 | 2,23 |
| J | internal | $kgm^2$ | 0,009 | 0,022 | 0,07 | 0,165 | 0,317 | 0,553 | 1,005 | 2,078 | 4,143 | 6,531 |
| | external | $kgm^2$ | 0,044 | 0,106 | 0,319 | 0,698 | 1,279 | 2,332 | 3,815 | 8,199 | 14,505 | 24,817 |
| Weight | | kg | 10,6 | 17,5 | 32 | 52 | 71 | 102 | 137 | 212 | 289 | 404 |
| Diameters | A max | | 55 | 75 | 100 | 130 | 155 | 170 | 207 | 225 | 285 | 285 |
| | B | | 195 | 235 | 300 | 360 | 405 | 455 | 505 | 590 | 670 | 740 |
| | C | | 185 | 223 | 284 | 340 | 385 | 430 | 480 | 562 | 637 | 708 |
| | D | | 118 | 140 | 185 | 220 | 255 | 285 | 315 | 360 | 440 | 460 |
| | E | | 167 | 200 | 260 | 309 | 354 | 394 | 440 | 507 | 590 | 650 |
| | F | | 156 | 188 | 238 | 289 | 325 | 365 | 405 | 470 | 542 | 592 |
| | G | | 130 | 156 | 205 | 240 | 270 | 320 | 350 | 420 | 490 | 530 |
| | H | | 22 | 30 | 30 | 35 | 45 | 60 | 60 | 60 | 60 | 75 |
| | J x 1,5 | | M16 | M22 | M22 | M27 | M35 | M50 | M50 | M50 | M50 | M65 |
| | K | | M5 | M6 | M8 | M10 | M10 | M12 | M12 | M14 | M16 | M16 |
| | Y | | 75 | 95 | 125 | 160 | 190 | 200 | 240 | 270 | 330 | 330 |
| Length dimensions | L | | 130,5 | 149,5 | 167,5 | 192,7 | 212 | 235 | 250,25 | 282,25 | 305 | 352,5 |
| | M | | 82,5 | 93,5 | 108,25 | 121,2 | 138 | 149 | 158,5 | 180 | 200 | 225 |
| | N | | 3,5 | 3,5 | 4,25 | 5 | 6 | 6 | 6 | 7 | 8 | 8,5 |
| | O | | 4 | 5 | 7 | 8 | 8 | 9 | 10 | 12 | 13 | 14 |
| | P | | 26 | 32,5 | 30,75 | 38 | 40 | 52 | 51 | 59,5 | 56,5 | 67,5 |
| | R | | 109 | 122 | 143,25 | 163,7 | 182,5 | 200 | 216 | 236,5 | 272,5 | 294 |
| | s air gap | | 0,5 | 0,5 | 0,75 | 1,2 | 1,2 | 1 | 1,2 | 1 | 1,5 | 1,5 |
| | T | | 6,5 | 7,5 | 10 | 12 | 12 | 15 | 15 | 18 | 20 | 20 |
| | T1 | | 9,5 | 12 | 17,25 | 19 | 16 | 19 | 20 | 24 | 19,5 | 18 |
| | U | | 59 | 65,5 | 75 | 84 | 95 | 100 | 113 | 125 | 140 | 160 |
| | V | | 4,5 | 5 | 5,75 | 6,5 | 7 | 8,5 | 8,25 | 11,25 | 3,5 | 13,5 |
| | W | | 12,5 | 12,5 | 13,75 | 17,5 | 18,5 | 21 | 26,5 | 19,5 | 31,5 | 26,5 |
| | X | | 3 | 3 | 3 | 3 | 4 | 5 | 5 | 5 | 5 | 5 |
| | Z | | 14,5 | 15 | 17,25 | 20,5 | 20 | 19 | 24,75 | 23,75 | 27,5 | 37,5 |
| Tightening torque | $M_A$ | Nm | 8,5 | 14 | 35 | 69 | 69 | 120 | 120 | 190 | 295 | 295 |
| | $M_{A1}$ | Nm | 6 | 10 | 25 | 49 | 49 | 86 | 86 | 135 | 210 | 210 |

# Pneumatically released, spring-applied brakes
## Single-plate version

Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE

The brakes of series **0452** are approved by the Employer's Liability Insurance Association as auxiliary brakes.

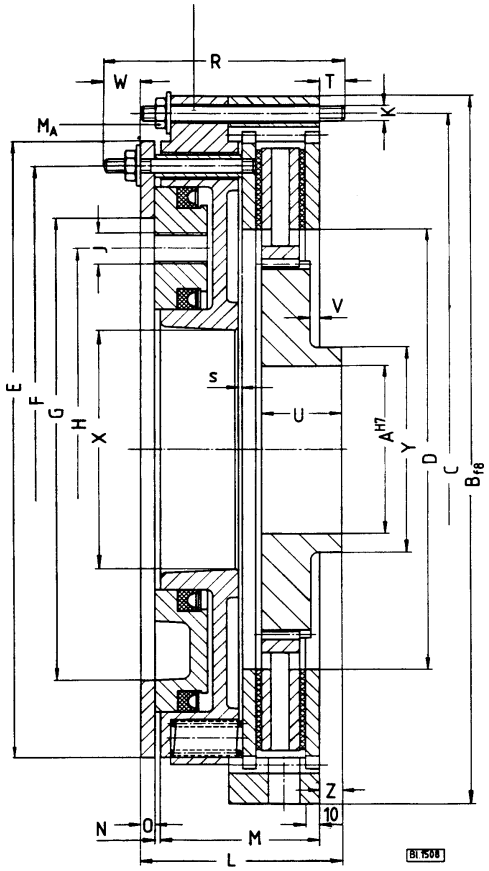
**Only for dry-running. It is essential that the friction surfaces are kept free of lubricants!**
**Can also be supplied in friction block version.**

Technical details on request.
Brakes for higher torques on request.
Operating pressure: p = 5.5 bar.
Maximum permissible operating pressure: $p_{max}$ = 6 bar.

3 air inlet holes displaced at 120° relative to one another.
Use a flexible hose as the air supply line.

**Tolerances** for bore and keyway see section 1 "Technical information".

12 screws displaced at 30° relative to one another




1) Spring back pressure
2) For male thread R.... as per ISO 7/1 and/or BS 21. Can also be combined with a male thread G.... A as per ISO 228/1 and/or BS 2779 if a seal is used.

| Series / Size | | | 0452-1.5-Size-000000 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **43** | **51** | **59** | **66** | **72** | **75** | **78** | **80** | **84** | **85** |
| Mdyn **0452-125-** 2 bar[1] | | Nm | 90 | 180 | 350 | 630 | 900 | 1400 | 2100 | 2800 | 4000 | 5500 |
| Mdyn **0452-115-** 2,7 bar[1] | | Nm | 125 | 230 | 480 | 850 | 1180 | 1800 | 2600 | 3500 | 5000 | 7000 |
| Mdyn **0452-105-** 4 bar[1] | | Nm | 180 | 360 | 700 | 1300 | 1800 | 2800 | 4200 | 5500 | 8000 | 11000 |
| n max | | $min^{-1}$ | 2800 | 2240 | 1700 | 1450 | 1250 | 1120 | 1000 | 850 | 750 | 670 |
| Stroke volume | | $dm^3$ | 0,052 | 0,102 | 0,169 | 0,34 | 0,507 | 0,603 | 0,769 | 0,97 | 1,268 | 2,23 |
| J | internal | $kgm^2$ | 0,004 | 0,01 | 0,031 | 0,069 | 0,146 | 0,216 | 0,416 | 0,768 | 1,364 | 2,615 |
| | external | $kgm^2$ | 0,028 | 0,067 | 0,205 | 0,422 | 0,802 | 1,429 | 2,326 | 4,889 | 8,981 | 15,479 |
| Weight | | kg | 6,3 | 10,3 | 19 | 30,5 | 42 | 56 | 79 | 114 | 161 | 226 |
| Diameters | A max | | 55 | 75 | 100 | 130 | 155 | 170 | 207 | 225 | 285 | 285 |
| | B | | 195 | 235 | 300 | 360 | 405 | 455 | 505 | 590 | 670 | 740 |
| | C | | 185 | 223 | 284 | 340 | 385 | 430 | 480 | 562 | 637 | 708 |
| | D | | 118 | 140 | 185 | 220 | 255 | 285 | 315 | 360 | 440 | 460 |
| | E | | 167 | 200 | 260 | 309 | 354 | 394 | 440 | 507 | 590 | 650 |
| | F | | 156 | 188 | 238 | 289 | 325 | 365 | 405 | 470 | 542 | 592 |
| | G | | 130 | 156 | 205 | 240 | 270 | 320 | 350 | 420 | 490 | 530 |
| | H | | 114 | 132,5 | 180 | 207 | 232 | 270 | 287 | 360 | 430 | 462,5 |
| | J[2] | | Rp1/8 | Rp1/4 | Rp1/4 | Rp3/8 | Rp1/2 | Rp3/4 | Rp3/4 | Rp1 | Rp1 | Rp1 1/4 |
| | K | | M5 | M6 | M8 | M10 | M10 | M12 | M12 | M14 | M16 | M16 |
| | X~ | | 66 | 75 | 115 | 130 | 140 | 170 | 170 | 250 | 313 | 325 |
| | Y | | 75 | 95 | 125 | 160 | 190 | 200 | 240 | 270 | 330 | 330 |
| Length dimensions | L max | | 77,5 | 86,5 | 106,5 | 122,25 | 133,5 | 138,5 | 168 | 167,25 | 188 | 214,5 |
| | M | | 58 | 66 | 76,75 | 86,5 | 97,25 | 105,25 | 111,25 | 125,75 | 139,75 | 159,5 |
| | N | | 3,5 | 3,5 | 4,25 | 5 | 6 | 6 | 6 | 7 | 7,5 | 8 |
| | O | | 4 | 5 | 7 | 8 | 8 | 9 | 10 | 12 | 13 | 14 |
| | R max | | 84,5 | 95 | 112,25 | 129,25 | 142,25 | 156,75 | 169,25 | 182,75 | 212,75 | 229 |
| | s air gap | | 0,5 | 0,5 | 0,5 | 0,65 | 0,65 | 0,5 | 0,7 | 0,5 | 1 | 1 |
| | T | | 6,5 | 7,5 | 10 | 12 | 12 | 15 | 15 | 18 | 20 | 20 |
| | U | | 32 | 35 | 45 | 52 | 57 | 56 | 82 | 70 | 80 | 90 |
| | V | | 4,5 | 5 | 5,5 | 4,75 | 6,25 | 8,25 | 8,75 | 11 | 8,25 | 13 |
| | W | | 12,5 | 12,5 | 13,75 | 17,5 | 18,5 | 21 | 26,5 | 19,5 | 31,5 | 26,5 |
| | Z | | 11,5 | 11,5 | 18 | 22,25 | 21,75 | 17,75 | 40,25 | 22 | 26,75 | 32 |
| Tightening torque | MA | Nm | 8,5 | 14 | 35 | 69 | 69 | 120 | 120 | 190 | 295 | 295 |

# Pneumatically released, spring-applied brakes
## Double-plate version

Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE

The brakes of series **0452** are approved by the Employer's Liability Insurance Association as auxiliary brakes.

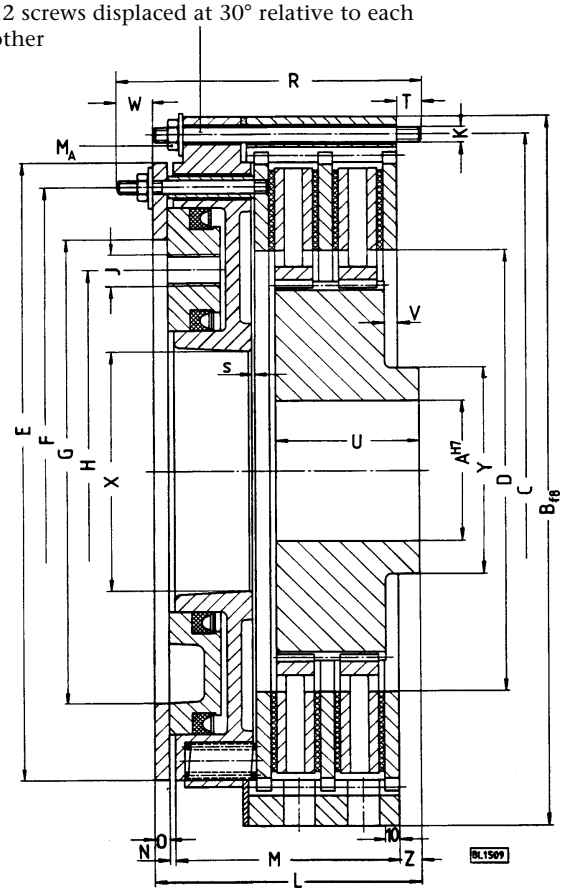
**Only for dry-running. It is essential that the friction surfaces are kept free of lubricants!**
**Can also be supplied in friction block version.**

Technical details on request.
Brakes for higher torques on request.
Operating pressure: p = 5.5 bar.
Maximum permissible operating pressure: $p_{max}$ = 6 bar.

3 air inlet holes displaced at 120° relative to one another.
Use a flexible hose as the air supply line.

**Tolerances** for bore and keyway see section 1 "Technical information".

12 screws displaced at 30° relative to each other

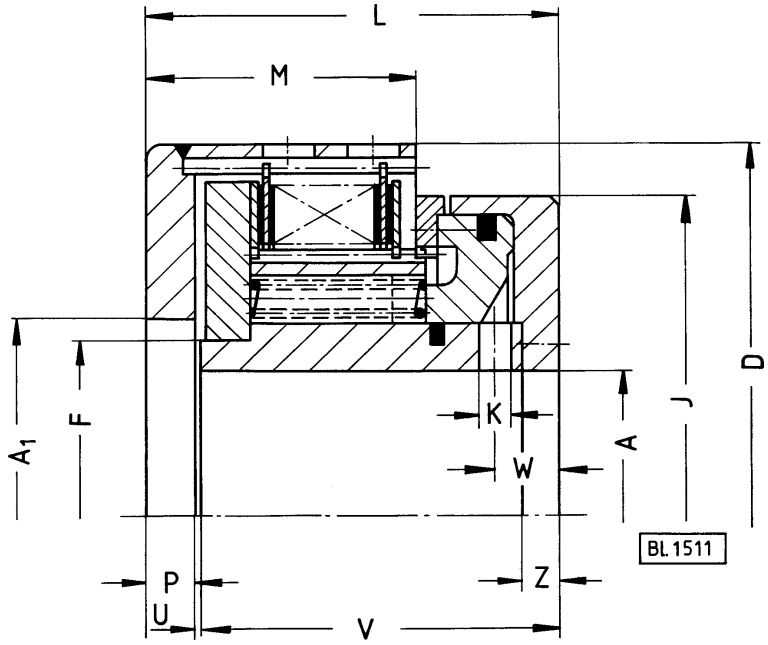



[1] Spring back pressure
[2] For male thread R.... as per ISO 7/1 and/or BS 21. Can also be combined with a male thread G.... A as per ISO 228/1 and/or BS 2779 if a seal is used.

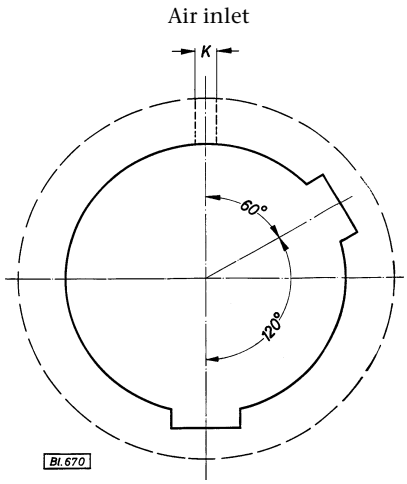
| Series / Size | | | | 0452-2.5-Size-000000 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **43** | **51** | **59** | **66** | **72** | **75** | **78** | **80** | **84** | **85** |
| Mdyn | **0452-225-** | 2 bar[1] | Nm | 180 | 360 | 670 | 1250 | 2000 | 2800 | 4200 | 5300 | 7800 | 10600 |
| Mdyn | **0452-215-** | 2,7 bar[1] | Nm | 250 | 460 | 950 | 1700 | 2500 | 4000 | 5300 | 7500 | 10500 | 15000 |
| Mdyn | **0452-205-** | 4 bar[1] | Nm | 360 | 710 | 1400 | 2500 | 4000 | 5600 | 8000 | 10500 | 16000 | 22000 |
| n max | | | $min^{-1}$ | 2800 | 2240 | 1700 | 1450 | 1250 | 1120 | 1000 | 850 | 750 | 670 |
| Stroke volume | | | $dm^3$ | 0,052 | 0,102 | 0,169 | 0,34 | 0,507 | 0,603 | 0,769 | 0,97 | 1,268 | 2,23 |
| J | | internal | $kgm^2$ | 0,008 | 0,021 | 0,061 | 0,134 | 0,285 | 0,43 | 0,784 | 1,527 | 2,706 | 5,207 |
| | | external | $kgm^2$ | 0,039 | 0,092 | 0,276 | 0,574 | 1,066 | 1,925 | 3,166 | 6,828 | 12,005 | 20,622 |
| Weight | | | kg | 9,2 | 15 | 27,5 | 43 | 60,5 | 85 | 111 | 168 | 233 | 329 |
| Diameters | | A max | | 55 | 75 | 100 | 130 | 155 | 170 | 207 | 225 | 285 | 285 |
| | | B | | 195 | 235 | 300 | 360 | 405 | 455 | 505 | 590 | 670 | 740 |
| | | C | | 185 | 223 | 284 | 340 | 385 | 430 | 480 | 562 | 637 | 708 |
| | | D | | 118 | 140 | 185 | 220 | 255 | 285 | 315 | 360 | 440 | 460 |
| | | E | | 167 | 200 | 260 | 309 | 354 | 394 | 440 | 507 | 590 | 650 |
| | | F | | 156 | 188 | 238 | 289 | 325 | 365 | 405 | 470 | 542 | 592 |
| | | G | | 130 | 156 | 205 | 240 | 270 | 320 | 350 | 420 | 490 | 530 |
| | | H | | 114 | 132,5 | 180 | 207 | 232 | 270 | 287 | 360 | 430 | 462,5 |
| | | J[2] | | Rp1/8 | Rp1/4 | Rp1/4 | Rp3/8 | Rp1/2 | Rp3/4 | Rp3/4 | Rp1 | Rp1 | Rp1 1/4 |
| | | K | | M5 | M6 | M8 | M10 | M10 | M12 | M12 | M14 | M16 | M16 |
| | | X~ | | 66 | 75 | 115 | 130 | 140 | 170 | 170 | 250 | 313 | 325 |
| | | Y | | 75 | 95 | 125 | 160 | 190 | 200 | 240 | 270 | 330 | 330 |
| Length dimensions | | L max | | 105 | 117 | 136,75 | 155 | 172 | 183 | 199,25 | 222,75 | 248,5 | 285 |
| | | M | | 82,5 | 93 | 107,75 | 120,75 | 137,5 | 148,5 | 158 | 179,5 | 199,5 | 224,5 |
| | | N | | 3,5 | 3,5 | 4 | 4,5 | 5,5 | 5,5 | 5,5 | 6,5 | 7 | 7,5 |
| | | O | | 4 | 5 | 7 | 8 | 8 | 9 | 10 | 12 | 13 | 14 |
| | | R max | | 108,5 | 122 | 143,25 | 164 | 182,5 | 200 | 216 | 236,5 | 272,5 | 294 |
| | | s air gap | | 0,5 | 0,5 | 0,75 | 1,2 | 1,2 | 1 | 1,2 | 1 | 1,5 | 1,5 |
| | | T | | 6,5 | 7,5 | 10 | 12 | 12 | 15 | 15 | 18 | 20 | 20 |
| | | U | | 59 | 65,5 | 75 | 84 | 95 | 100 | 113 | 125 | 140 | 160 |
| | | V | | 4,5 | 5 | 5,75 | 6,5 | 7 | 8,5 | 8,25 | 11,25 | 3,5 | 13,5 |
| | | W | | 12,5 | 12,5 | 13,75 | 17,5 | 18,5 | 21 | 26,5 | 19,5 | 31,5 | 26,5 |
| | | Z | | 14,5 | 15 | 17,75 | 20,5 | 20 | 19 | 24,75 | 23,75 | 27,5 | 37,5 |
| Tightening torque | | $M_A$ | Nm | 8,5 | 14 | 35 | 69 | 69 | 120 | 120 | 190 | 295 | 295 |

# Pneumatically actuated multi-plate clutches
**for dry-running with cup housing**

Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE




<- X



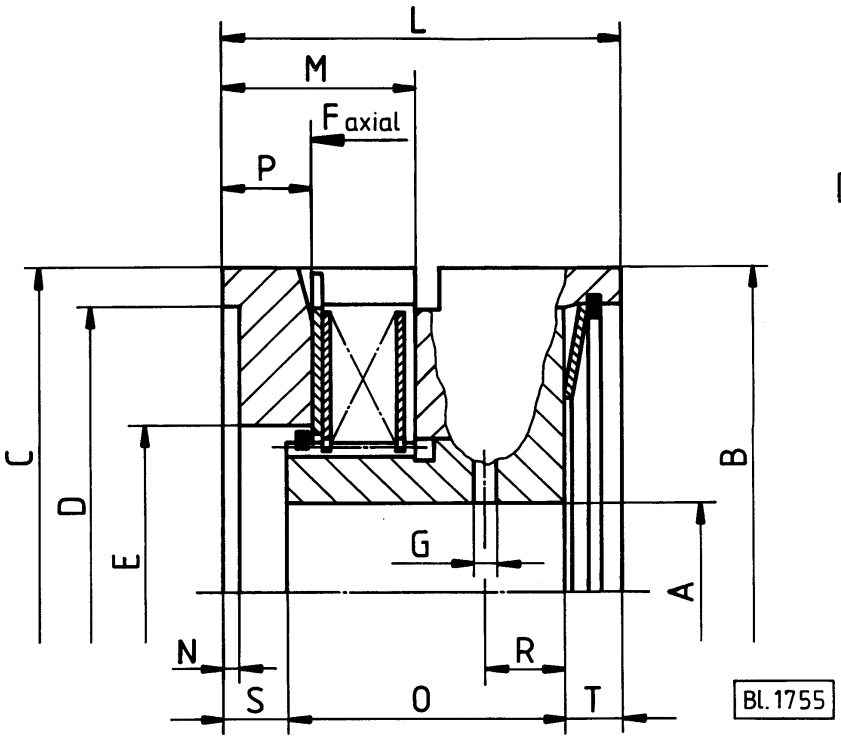

**View X**
Up to size 23 one keyway offset at 180° to the air inlet; from size 27 two keyways positioned as shown in view X.

| Series / Size | | | 0421-007-Size-000000 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **15** | **23** | **27** | **32** | **39** | **43** | **47** | **55** |
| $M_{dyn}$ | | Nm | 160 | 224 | 315 | 450 | 630 | 900 | 1600 | 3150 |
| Operating pressure | | bar | | | | | 5,5 | | | |
| Back pressure | | bar | 0,8 | 1,1 | 1,3 | 1,3 | 1,5 | 1,3 | 1,4 | 1,4 |
| $n_{max}$ | cylinder | $min^{-1}$ | 5000 | 4200 | 3900 | 3400 | 3000 | 2600 | 2400 | 1900 |
| Stroke volume | in new state | $cm^3$ | 3 | 5 | 6 | 7 | 16 | 15 | 26 | 53 |
| | at max. wear | $cm^3$ | 10 | 17 | 21 | 30 | 46 | 64 | 102 | 215 |
| J | internal | $kgcm^2$ | 17,6 | 35 | 50,4 | 100,6 | 182,4 | 313,7 | 611,5 | 1915,8 |
| | external | $kgcm^2$ | 11,4 | 28,2 | 48,9 | 82,1 | 176,3 | 285,2 | 491 | 1514,9 |
| Weight | | kg | 2,3 | 3,6 | 4,7 | 6,7 | 10,2 | 13,7 | 20,3 | 41,3 |
| Diameters | A prebored | | 18 | 25 | 25 | 25 | 32 | 32 | 32 | 40 |
| | $A_1$ prebored | | 18 | 20 | 20 | 20 | 25 | 28 | 28 | 30 |
| | $A_{max}$ H7 | | 38 | 45 | 48 | 60 | 65 | 70 | 75 | 82 |
| | Keyway DIN 6885 | | 10x2,4 | 14x2,1 | 14x2,1 | 18x2,3 | 18x2,3 | 20x2,7 | 20x2,7 | 22x3,1 |
| | D | | 95 | 112 | 125 | 140 | 160 | 180 | 200 | 252 |
| | F | | 48 | 55 | 63 | 72 | 80 | 85 | 95 | 115 |
| | J | | 90 | 104 | 110 | 125 | 140 | 155 | 185 | 230 |
| | K | | 4 | 4,5 | 4,5 | 5,5 | 6 | 7 | 7 | 8 |
| Length dimensions | L | | 58 | 66 | 70 | 80 | 93 | 98 | 110 | 137 |
| | M | | 34 | 41 | 44 | 50 | 60 | 64 | 70 | 88 |
| | P | | 5 | 9 | 9 | 9 | 12 | 12 | 14 | 15 |
| | U | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| | V | | 52 | 56 | 60 | 70 | 80 | 85 | 95 | 120 |
| | W | | 9 | 10 | 11 | 12 | 14,5 | 15 | 18 | 21 |
| | Z | | 6 | 6,5 | 7,5 | 8 | 9 | 9 | 12 | 15 |

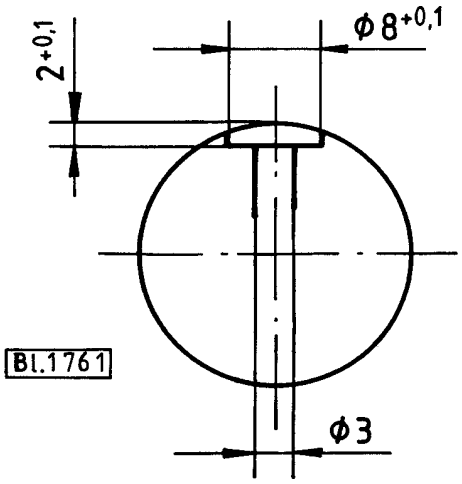
**Hub housing** Available on request
**Friction combination** Steel/friction lining for dry-running; the plate stack must be sealed to prevent lubricants getting in.
**Tolerances** For bore and keyway see section 1 "Technical information".
**Higher torques** Series **0402-033**, on request.

**Fittings notes**
The axial force $F_{axial}$ given when the clutch is engaged must be absorbed by the bearing of the output or, input assembly, it should be noted that the bearing does not rotate when the clutch is engaged.

The compressed air for actuating the clutch is fed in through the shaft. Sealing is carried out by means of a sealing washer, article No. 1991-550-15-001000.




**Fitting dimensions for sealing washer:**

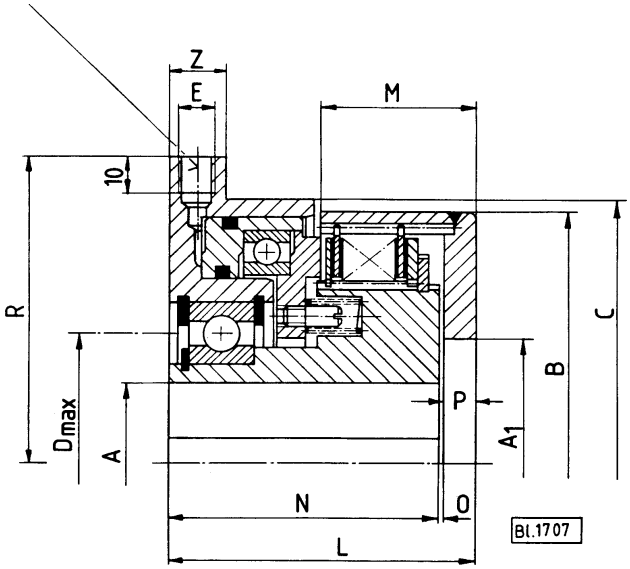


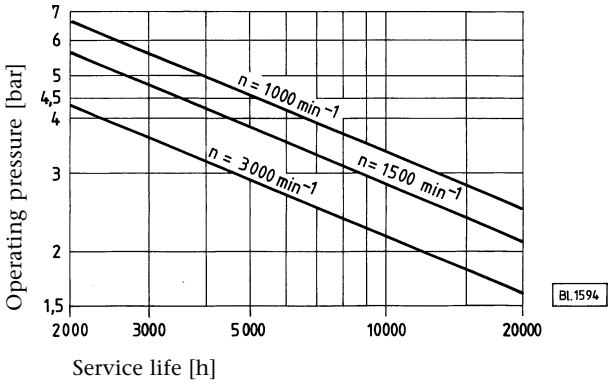

| Series / Size | | | 0409-007-Size-010000 07 | 11 | 15 | 19 |
|---|---|---|---|---|---|---|
| Mdyn | dry-running | Nm | 40 | 55 | 75 | 150 |
| Mstat | dry-running | Nm | 55 | 75 | 100 | 200 |
| Mdyn | wet-running | Nm | 27,5 | 37,5 | 50 | 100 |
| Mstat | wet-running | Nm | 40 | 55 | 75 | 150 |
| Operating pressure | | bar | 6 | 6 | 6 | 6 |
| F axial | | N | - | 1360 | 1770 | 2560 |
| Diameters | A max H7 | | 18 | 22 | 25 | 30 |
| | Keyway DIN 6885 | | 6x2,8 | 6x2,8 | 8x3,3 | 8x3,3 |
| | B | | 68 | 80 | 90 | 100 |
| | C | | 65 | 80 | 90 | 102 |
| | D H7 | | 55 | 70 | 80 | 80 |
| | E min | | 25 | 46 | 46 | 54 |
| | E prebored[1)] | | 20 | 25 | 25 | 30 |
| | G | | 3 | 3 | 3 | 3 |
| Length dimensions | L | | 58 | 55 | 54 | 62 |
| | M | | 31 | 26 | 26 | 31,5 |
| | N | | 2 | 2 | 2 | 2 |
| | O | | 42 | 42 | 37,5 | 55 |
| | P | | 9 | 10 | 12 | 11 |
| | R | | 10,5 | 10,5 | 10,5 | 14,5 |
| | S | | 10 | 6 | 8,5 | 7 |
| | T | | 6 | 7 | 8 | - |

[1)] Other bores on request.

**Friction combination** Steel/sinter for dry- or wet-running
**Rotary inlets for compressed air** Page 6.57.00

Compressed air connection must be via. a flexible hose!
Secure the cylinder against rotation using the flexible hose!
The bearing friction occurs as a load.




**Key to version**
**0521-0 . 7- . . -000000**

| | | | |
|---|---|---|---|
| **0** | Pipe | M10x1 | Sizes 15-39 |
| **1** | Pipe | G1/8 | |
| **2** | Pipe | M12x1,5 | Sizes 43-63 |
| **3** | Pipe | G1/4 | |

| Series / Size | | | **0521-0.7-Size-000000** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **15** | **23** | **27** | **32** | **39** | **43** | **47** | **55** | **63** |
| $M_{dyn}$ | | Nm | 190 | 270 | 390 | 550 | 775 | 1485 | 2025 | 3465 | 5550 |
| Operating pressure | | bar | | | | | 5,5 | | | | |
| Back pressure | | bar | | | | | 0,5 | | | | |
| n max | | $min^{-1}$ | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 2800 | 2250 | 1800 |
| Stroke volume | in new state | $cm^3$ | 3,4 | 6,1 | 8,1 | 8,3 | 12,5 | 24,2 | 36,1 | 44,4 | 47,3 |
| | at max. wear | $cm^3$ | 13,7 | 16,4 | 21,6 | 26,5 | 41,7 | 57,7 | 86,7 | 135,3 | 250,4 |
| J | internal | $kgcm^2$ | 3,3 | 18,1 | 26,8 | 56,5 | 104 | 226 | 383 | 1118 | 2868 |
| | external | $kgcm^2$ | 9,6 | 25,2 | 40,9 | 65,7 | 151 | 271 | 465 | 1446 | 3470 |
| Weight | | ca. kg | 1,7 | 3,7 | 4,6 | 6,4 | 10,3 | 15,4 | 21 | 39,6 | 75 |
| Diameters | A1 prebored | | 14 | 18 | 18 | 20 | 25 | 25 | 32 | 40 | 50 |
| | A max H7 | | 22 | 30 | 36 | 45 | 52 | 60 | 70 | 90 | 110 |
| | Keyway DIN 6885 | | 6x1,6 | 8x2,0 | 10x2,4 | 14x2,1 | 16x2,4 | 18x2,3 | 20x2,7 | 25x2,9 | 28x6,4 |
| | B | | 95 | 112 | 125 | 140 | 160 | 180 | 200 | 252 | 305 |
| | C | | 100 | 118 | 128 | 148 | 162 | 188 | 215 | 252 | 305 |
| | D max | | 50 | 55 | 65 | 80 | 90 | 110 | 120 | 150 | 180 |
| | E[1] | | M10x1 / G1/8 | | | | | M12x1,5 / G1/4 | | | |
| | Z | | 14 | 18 | | | | | | | |
| Length dimensions | L | | 62,5 | 74 | 78 | 85 | 98 | 113 | 125 | 147 | 168 |
| | M | | 30,5 | 38 | 39 | 43 | 54 | 64 | 70 | 88 | 95 |
| | N | | 56,5 | 64 | 68 | 75 | 85 | 100 | 110 | 130 | 150 |
| | O | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| | P | | 5 | 9 | 9 | 9 | 12 | 12 | 14 | 15 | 16 |
| | R | | 60 | 72 | 77 | 87 | 94 | 107 | 120,5 | 139 | 165,5 |

1) Gas thread G. . . . as per ISO 228/1 and/or BS 2779.
Further housing versions on request.
**Friction combination** steel/organic friction lining **for dry-running only.**

## Design variations

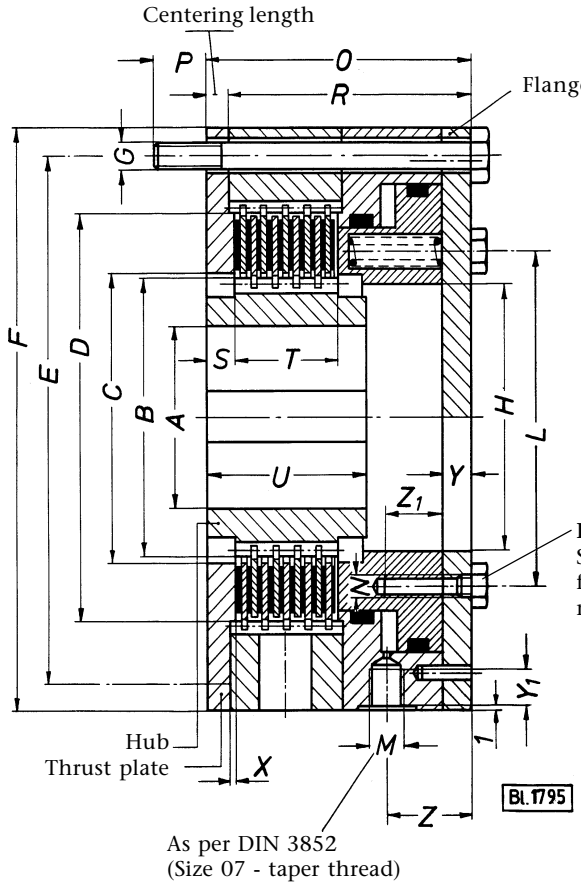
**0422 - . . . -Size- 002000**

| | | | | |
|---|---|---|---|---|
| **0**<br>**1** | | | Closed version<br>Open version | with thrust plate |
| **2**<br>**3** | | | Closed version<br>Open version | without thrust plate |
| | **0**<br>**1** | | Pipe connection with metric thread<br>Pipe connection with inch thread | with hub |
| | **2**<br>**3** | | Pipe connection with metric thread<br>Pipe connection with inch thread | without hub |
| | | **0**<br>**9** | Without flange<br>With flange | |

**0422 - 1 . 1 -Size- 000000**

| | | |
|---|---|---|
| | **0**<br>**2** | With hub<br>Without hub |

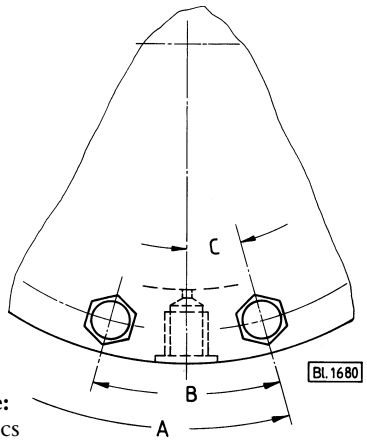
**Series 0422 - . . $\frac{0}{9}$** Version without centering function between input and output side.




**Emergency release:**
Should the pneumatics fail, the piston can be released with screws!

<- **Y**

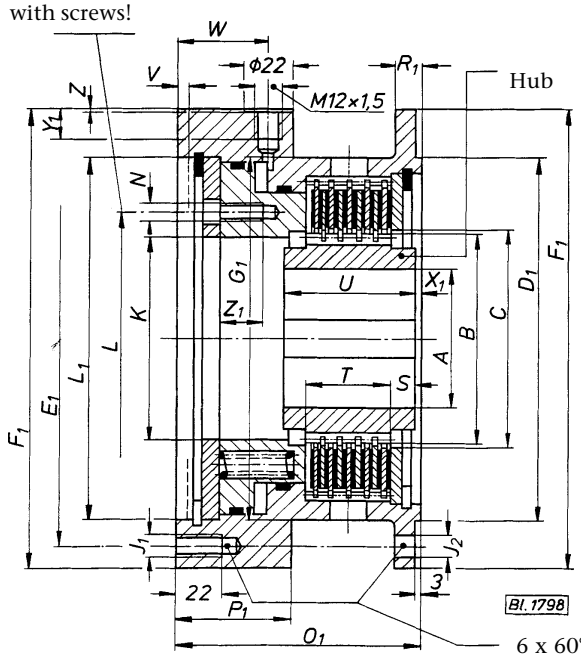
**View Y**




| Size | A | B | C |
|---|---|---|---|
| 07 | 6x60° | 60° | 30° |
| 11-15 | 6x60° | 60° | 15° |
| 23-69 | 12x30° | 30° | 15° |

**Series 0422-1 . 1** Version with centering function between input and output side

**Emergency release:**
Should the pneumatics fail, the piston can be released with screws!



| Series | | | 0422-...-Size-002000 | | | | | | | | | | 0422-..1-Size-000000 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | **07** | **11** | **15** | **23** | **25** | **31** | **39** | **47** | **55** | **63** | **69** | **25** | **31** | **39** | **47** | **55** |
| $M_{dyn}$ | | Nm | 20 | 28 | 50 | 120 | 125 | 200 | 320 | 550 | 900 | 1500 | 2450 | 125 | 200 | 320 | 550 | 900 |
| $M_{stat}$ | | Nm | 23 | 30 | 58 | 130 | 140 | 230 | 370 | 635 | 1040 | 1730 | 2700 | 140 | 230 | 370 | 635 | 1040 |
| Releasing pressure min. | | bar | | | | | | 5 | | | | | | | | 5 | | |
| Operating pressure max. | | bar | | | | | | 10 | | | | | | | | 10 | | |
| Speed max bei Schaltung[1] | | $min^{-1}$ | 14854 | 11330 | 9758 | 9482 | 7427 | 6521 | 5547 | 4341 | 3537 | 2925 | 2494 | 7427 | 6521 | 5547 | 4341 | 3537 |
| Speed max bei Leerlauf | | $min^{-1}$ | 16977 | 12948 | 11152 | 10836 | 8488 | 7453 | 6340 | 4961 | 4042 | 3343 | 2851 | 8488 | 7453 | 6340 | 4961 | 4042 |
| Stroke volume | | $cm^3$ | 5,2 | 4 | 6,3 | 15,7 | 17 | 28 | 41 | 61 | 91 | 137 | 204 | 17 | 28 | 41 | 61 | 91 |
| J | internal | $kgcm^2$ | 0,6 | 1,5 | 3,25 | 7 | 14,25 | 25 | 65 | 175 | 550 | 1150 | 2600 | 14,25 | 25 | 65 | 175 | 550 |
| Weight | | kg | 2,2 | 3,5 | 6,5 | 7,8 | 11 | 16 | 21,5 | 30 | 45,5 | 66,5 | 130 | 11 | 14 | 18,5 | 27 | 51 |
| ØA prebored | | | – | - | - | - | 20 | - | - | - | 60 | 70 | 80 | 20 | 20 | 30 | 40 | 60 |
| Recommended bores[2] | A max H 7 | | 18 | **30** | **30** | 40 | **45** | **55** | **65** | 90 | 110 | 140 | 150 | 45 | 55 | 65 | 90 | 110 |
| | Keyway DIN 6885 | | 6x | **8x** | **8x** | 12x | **14x** | **16x** | **18x** | 25x | 28x | 36x | 36x | 14x | 16x | 18x | 25x | 8x |
| | | | 2,8 | **3,3** | **3,3** | 2,2 | **3,8** | **4,3** | **4,4** | 5,4 | 6,4 | 8,4 | 8,4 | 3,8 | 4,3 | 4,4 | 5,4 | 6,4 |
| | A H 7 | | | **25** | **25** | **35** | **40** | **50** | **60** | | | | | | | | | |
| | Keyway DIN 6885 | | | **8x** | **8** | **10x** | **12x** | **14x** | **18x** | | | | | | | | | |
| | | | | **3,3** | **3,3** | **3,3** | **3,3** | **3,8** | **4,4** | | | | | | | | | |
| | A H 7 | | | | | **30** | **35** | **45** | **50** | | | | | | | | | |
| | Keyway DIN 6885 | | | | | **8x** | **10x** | **14x** | **14x** | | | | | | | | | |
| | | | | | | **3,3** | **3,3** | **3,8** | **3,8** | | | | | | | | | |
| | A H7 | | | | | | **30/25** | **30** | | | | | | | | | | |
| | Keyway DIN 6885 | | | | | | **8x** | **8x** | | | | | | | | | | |
| | | | | | | | **3,3** | **3,3** | | | | | | | | | | |
| Diameters | B d9 | | 33 | 49,6 | 51,6 | 60 | 70 | 81,4 | 100 | 127 | 148 | 184 | 216 | 70 | 81,4 | 100 | 127 | 148 |
| | C | | 35 | 52 | 54 | 62 | 72 | 85 | 102 | 132 | 155 | 188 | 220 | 72 | 85 | 102 | 132 | 155 |
| | D H8 | | 55 | 69 | 80 | 82,2 | 112 | 126 | 144 | 182 | 228 | 279 | 328 | – | – | – | – | – |
| | $D_1$ g7 | | – | – | – | – | – | – | – | – | – | – | – | 130 | 145 | 170 | 205 | 250 |
| | E | | 73 | 90 | 100 | 115 | 135 | 160 | 185 | 220 | 265 | 315 | 370 | – | – | – | – | – |
| | $E_1$ | | – | – | – | – | – | – | – | – | – | – | – | 155 | 170 | 195 | 230 | 290 |
| | F f7 | | 83 | 105 | 120 | 135 | 155 | 180 | 205 | 245 | 290 | 345 | 400 | – | – | – | – | – |
| | $F_1$ | | – | – | – | – | – | – | – | – | – | – | – | 170 | 190 | 215 | 250 | 315 |
| | G | | M6 | M6 | M8 | M8 | M8 | M10 | M10 | M12 | M14 | M16 | M16 | – | – | – | – | – |
| | $G_1$ | | – | – | – | – | – | – | – | – | – | – | – | 136 | 151 | 172 | 210 | 265 |
| | H H7 | | 27 | 45 | 45 | 52 | 65 | 80 | 95 | 120 | 140 | 180 | 205 | – | – | – | – | – |
| | K | | – | – | – | – | – | – | – | – | – | – | – | 65 | 80 | 95 | 120 | 140 |
| | $J_1$ | | – | – | – | – | – | – | – | – | – | – | – | M8 | M10 | M10 | M10 | M12 |
| | $J_2$ | | – | – | – | – | – | – | – | – | – | – | – | 8,5 | 10,5 | 10,5 | 10,5 | 13 |
| | L | | – | 57 | 60 | 66 | 88 | 103 | 118 | 152 | 180 | 220 | 280 | 88 | 103 | 118 | 152 | 180 |
| | $L_1$ H7 | | – | – | – | – | – | – | – | – | – | – | – | 130 | 145 | 170 | 205 | 250 |
| | N | | – | M6 | M6 | M6 | M8 | M8 | M8 | M10 | M12 | M12 | M12 | M8 | M8 | M8 | M10 | M12 |
| | M[3] | | M10 x1 $G^1/_8$ | | | | | M12 x1,5 $G^1/_4$ | | | | | M16 x1,5 $G^3/_8$ | | | | | |
| Length dimensions | O | | 59 | 67 | 77 | 81 | 90 | 95 | 100 | 110 | 135 | 145 | 165 | – | – | – | – | – |
| | $O_1$ | | – | – | – | – | – | – | – | – | – | – | – | 100 | 104 | 112 | 122 | 150 |
| | P | | 11 | 13 | 13 | 14 | 20 | 15 | 20 | 20 | 25 | 25 | 25 | – | – | – | – | – |
| | $P_1$ | | – | – | – | – | – | – | – | – | – | – | – | 49 | 52 | 53 | 58 | 63 |
| | R | | 54 | 61 | 69 | 73 | 82 | 86 | 91 | 99 | 122 | 130 | 148 | – | – | – | – | – |
| | $R_1$ | | – | – | – | – | – | – | – | – | – | – | – | 11 | 12 | 13 | 13 | 15 |
| | S | | 7 | 8 | 10 | 10 | 10 | 11 | 11 | 14 | 16 | 18 | 20 | 10 | 11 | 11 | 14 | 16 |
| | T | | 21 | 22 | 24 | 25 | 32 | 33 | 38 | 40 | 58 | 59 | 70 | 32 | 33 | 38 | 40 | 58 |
| | U | | 35 | 38 | 44 | 45 | 52 | 55 | 60 | 68 | 90 | 95 | 110 | 52 | 55 | 60 | 68 | 90 |
| | V max | | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 6 | 6 | 6 |
| | W | | – | – | – | – | – | – | – | – | – | – | – | 38 | 40 | 42 | 46 | 50 |
| | X | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | – | – | – | – | – |
| | $X_1$ | | – | – | – | – | – | – | – | – | – | – | – | 4 | 3 | 4 | 4 | 6 |
| | Y | | 7 | 8 | 9 | 10 | 11 | 12 | 12 | 14 | 16 | 18 | 20 | – | – | – | – | – |
| | Z | | 21 | 24 | 27 | 30 | 32 | 34 | 34 | 38 | 41 | 46 | 53 | – | – | – | – | – |
| | $Y_1$ | | 8 | 9 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 14 | 13 | 13 | 13 | 13 | 13 |
| | $Z_1$ | | _ | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 25 | 20 | 20 | 20 | 20 | 20 |

[1] thermal berechnung required.
[2] Bore printed in bold type are available ex stock.
[3] Gas thread G.... as per ISO 228/1 and/or BS 2779.

**Friction combination** Steel/organic friction lining (Größe 07: Stahl/Sinterbelag).
**For dry-running only, the plates must be kept free of lubricants.**

**Tolerances** For bore and keyway see section 1 "Technical information".

## Numbering key for design variations

**0415 - . . . -Size- . . . 000**

| | | | | |
|---|---|---|---|---|
| 2 | | | Flange open | external plates with splines |
| 3 | | | Flange closed | |
| 4 | | | Flange open | external plates with splines and Sinus ring |
| 5 | | | Flange closed | |
| | 0 | | Air connection G 1/8 | with hub |
| | 2 | | Air connection G 1/8 | without hub |
| | | 0 | without microswitch | emergency release normal (2 screws on flange side) |
| | | 1 | with microswitch | emergency release normal (2 screws on flange side) |
| | | 2 | without microswitch | without emergency release and manuel lever |
| | | 3 | without microswitch | with manuel lever disengagement |
| | | 4 | with microswitch | with manuel lever disengagement |
| | | 5 | with microswitch | without emergency release and manuel lever |

## Areas of application:

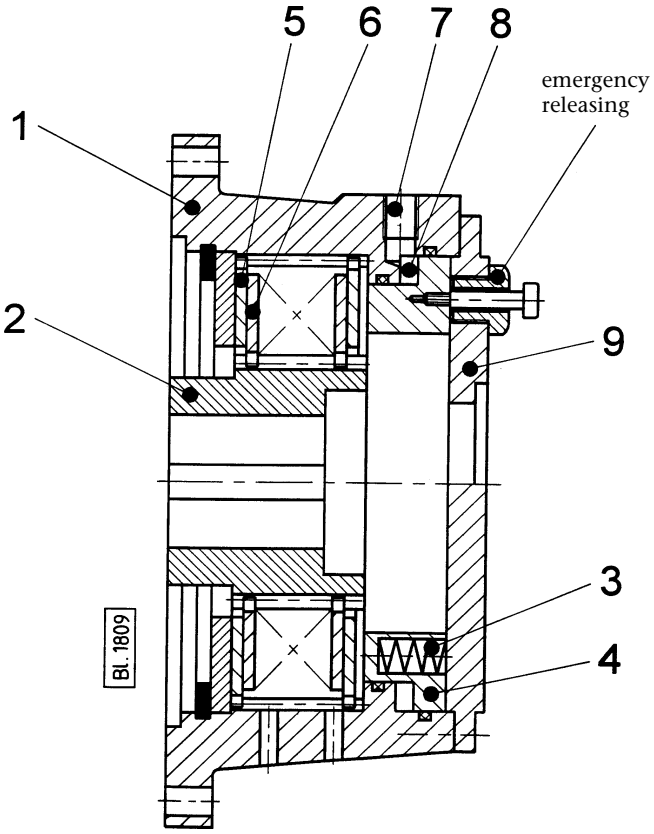
The brakes are suitable for mounting on electric motors or on the ends of machine shafts as holding brakes and for dynamic braking processes to fulfil necessary safety requirements.

## Design characteristics:

- multi-plate brake
- friction combination: steel/special sinter for dry-running
- brake applied by spring
- brake released pneumatically

## Options:

- location for fitting of detector
- with microswitch for monitoring the brake position
- with manual lever for emergency releasing (standard: emergency releasing screws)
- for vertical mounting




## Construction and operation

The housing (**1**) of the brake is mounted on a fixed machine face or on the motor end plate. The internal hub (**2**) is keyed on the shaft to be braked. The springs (**3**) press the piston (**4**) against the set of plates, which consist of outer plates (**5**), mounted in the housing (**1**) in such a way that they cannot rotate, and the inner plates (**6**) mounted on the hub. The spring pressure causes the adjacent surfaces of the inner and outer plates to be pressed together so that a frictional connection is produced. When compressed air at a pressure of at least 5.5 bar is led into the piston space (**8**) via the inlet hole (**7**), the brake is released. Here the piston (**4**) is pushed back against the spring pressure until it reaches the flange (**9**). This overcomes the spring force pushing the plates together so that the internal hub (**2**) together with the inner plates (**6**) can rotate freely with the shaft. The piston stroke increases automatically as the frictional surfaces wear down so that no adjustment is necessary at any time during the service life of the plates.

## Fitting of detector (option)

For fitting a speed detector, flange (**9**) can be supplied with a centering hole.

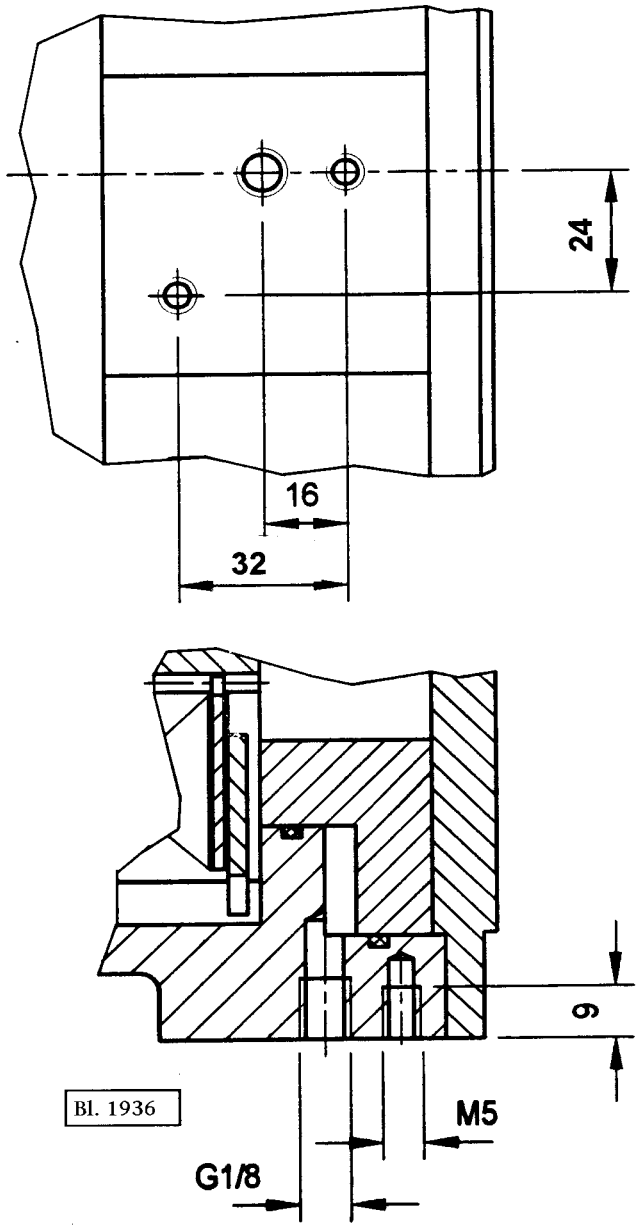
## Fitting position

**Standard version:** horizontal fitting position

If the brake is fitted vertically or at an angle to the horizontal, unacceptably high heat can be generated when the shaft is rotating, with the brake released, through gravity causing the plates to be pressed together. In this case shaft speed, operating time, frequency of switching and angle of inclination should be stated. A check can then be made as to whether special measures are required for the desired fitting position.

## Compressed air connection

The brakes have a G 1/8" tapped hole (**7**) on the housing (**1**) for connecting the compressed air. A switching valve with NAMUR connections can be secured directly on to the surface provided for this purpose.

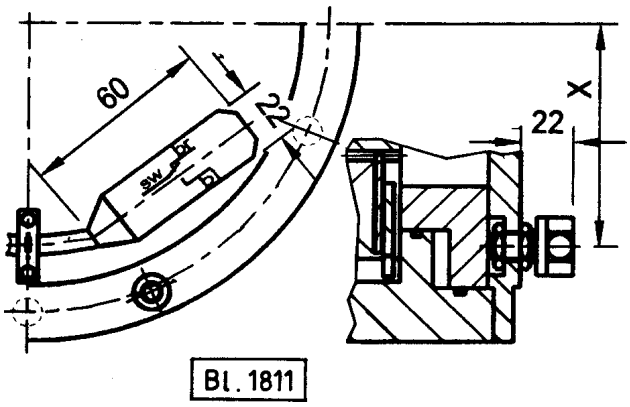



## Microswitch for monitoring brake position (optional)

**Technical data:**

| | |
|---|---|
| Change-over contact | 250 V, 4 A AC<br>24 V, 3.2 A DC<br>(Ohmic load) |
| Type of protection | IP 65 |
| Connection cable | 1.5 m long<br>A05VV-F (3 x 0.75 mm$^2$)<br>terminations with wire-end sleeves |

**Dimensions and fitting position:**



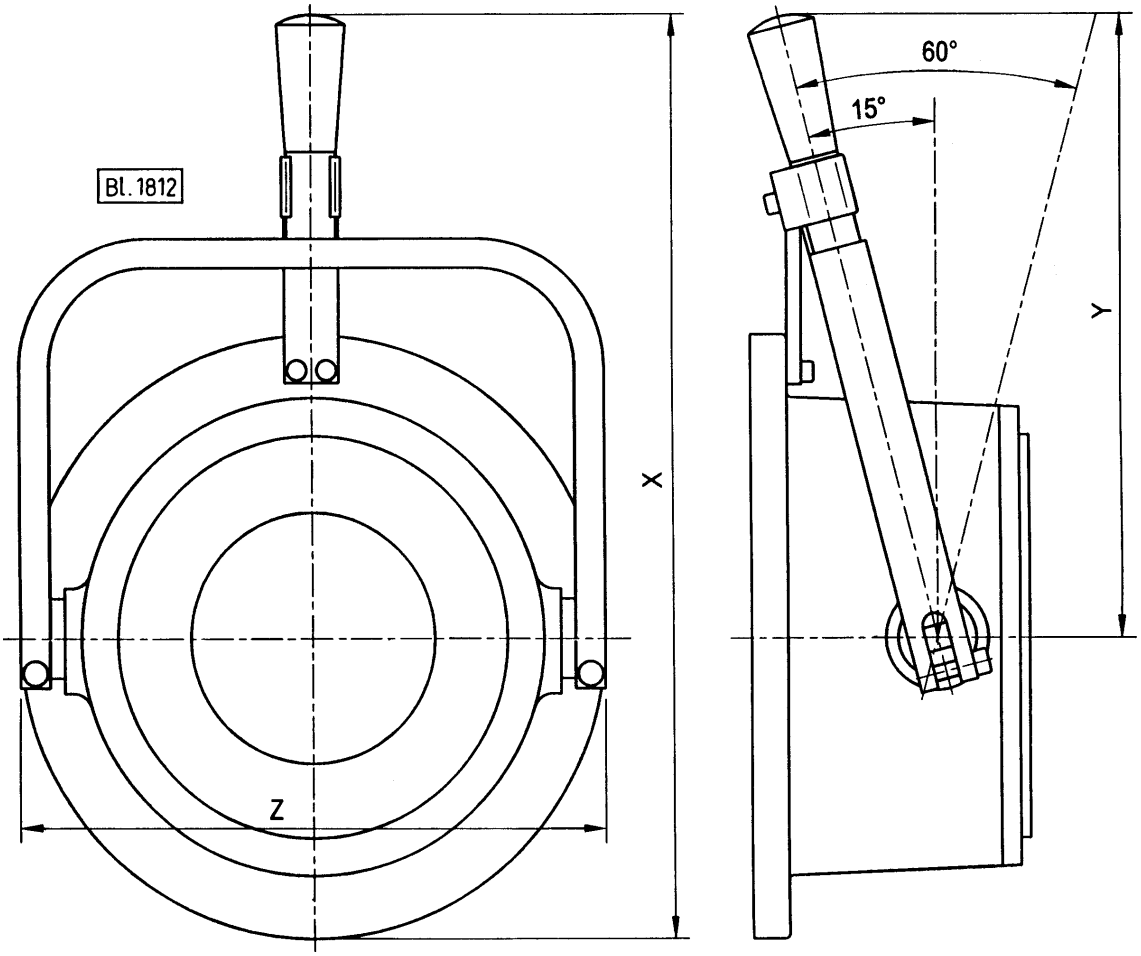

| Size | **31** | **39** | **43** | **55** |
|---|---|---|---|---|
| X | 63 | 70 | 85 | 109 |

## Emergency releasing (standard version)

Screws are provided to enable the brake to be released manually when no compressed air is available. A tool (open-end spanner) is required for this.

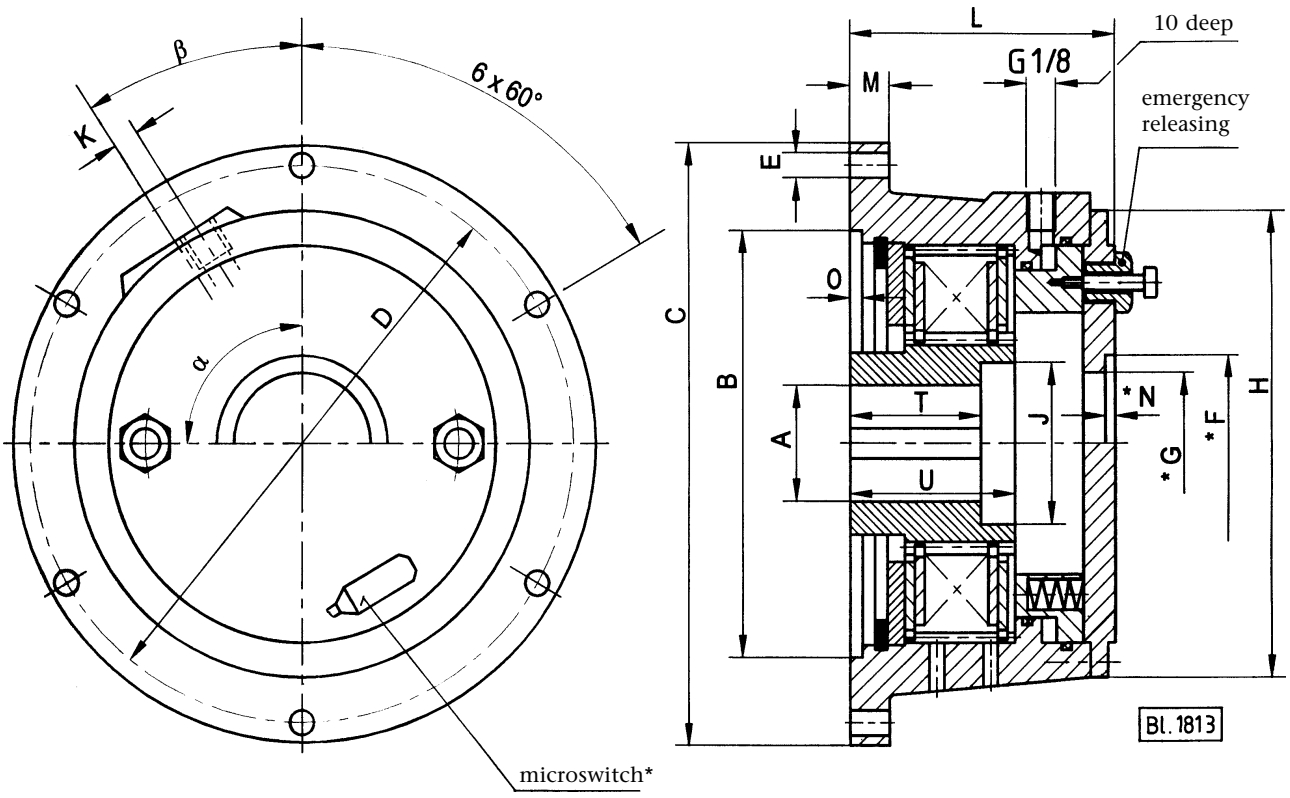
## Emergency releasing with manual lever (optional)

When this option is fitted, the brake can be released by turning the lever. The lever can be returned to its rest position manually or automatically with return springs.




| Size | | **31** | **39** | **43** |
|---|---|---|---|---|
| | X | 316,5 | 341,5 | 376,5 |
| | Y | 214 | 214 | 247,5 |
| | Z | 208 | 241 | 272 |

Dimension X when the lever is vertical




* in acc. with customer requirements

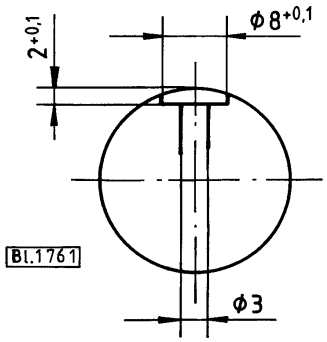
| Series / Size | | 0415-...-Size-...000000 31 | 39 | 43 | 55[1)] |
|---|---|---|---|---|---|
| Torque $M_{dyn}$ | Nm | 220 | 420 | 800 | 1600 |
| Speed max. | $min^{-1}$ | 2800 | 2800 | 2800 | 2800 |
| Brake releasing pressure min. | bar | 5,5 | 5,5 | 5,5 | 5,5 |
| Operating pressure max. | bar | 10 | 10 | 10 | 10 |
| Permissible energy per engagement | kJ | 85 | 120 | 265 | 420 |
| Permissible energy per hour | kJ | 830 | 1100 | 2500 | 4000 |
| J internal | $kgcm^2$ | 35 | 70 | 220 | 800 |
| Weight | kg | 10 | 18 | 29 | - |
| Diameters | A max | 45 | 60 | 70 | 100 |
| | B H7 | 160 | 200 | 200 | 275 |
| | C | 190 | 240 | 240 | 330 |
| | D | 170 | 220 | 220 | 300 |
| | E | 6,5 | 9 | 9 | 13 |
| | H | 162 | 196 | 240 | 282 |
| | J | 60 | 75 | - | - |
| Length dimensions | K | 10 | - | - | - |
| | L | 95 | 104 | 137 | 158 |
| | M | 12 | 14 | 26 | 20 |
| | O | 3 | 3 | 3 | 5 |
| | T -0,2 | 30 | 45 | 93 | 106 |
| | U | 52,5 | 61 | 93 | 106 |
| Angle | α | 90° | 135° | 90° | 90° |
| | β | 30° | 0° | 0° | 0° |

[1)] Size 55: 3 screws for emergency releasing, without manuel lever

## Notes on fitting

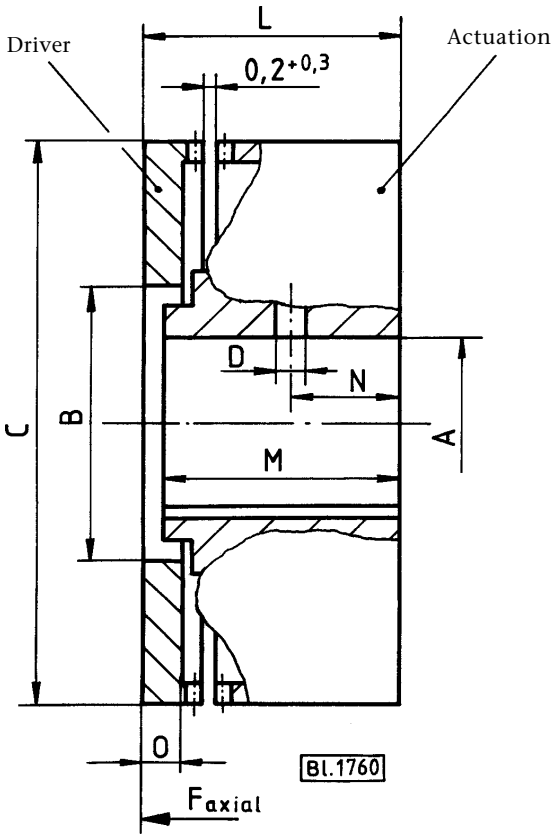
The axial force $F_{axial}$ given when the clutch is engaged must be absorbed by the bearing of the output or input driving assembly, it should be noted that the bearing does not rotate when the clutch is engaged. The compressed air for actuating the clutch is fed in through the shaft. Sealing washer article no. 1991-550-15-001000 is used to seal the clutch on the shaft.

## Fitting dimensions for sealing washer



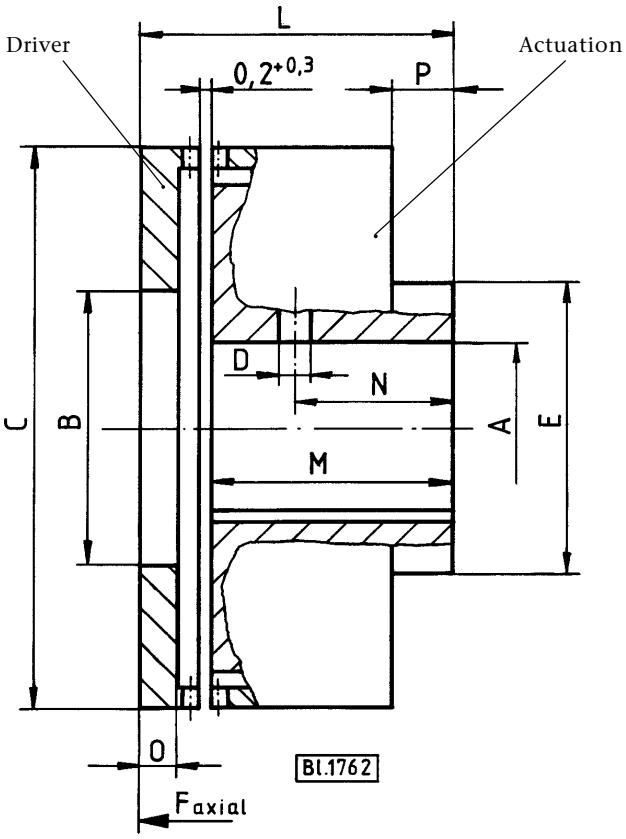

## Pneumatically actuated tooth clutches

**0412-004-..-000000 fixed-point engagement**
**0412-005-..-000000 normal engagement**




## Spring-applied tooth clutches

**0-412-014-..-000000 fixed-point engagement**
**0-412-015-..-000000 normal engagement**




| Series | | | 0412-00.-Size-000000 | | | |
|---|---|---|---|---|---|---|
| Size | | | 07 | 11 | 15 | 23 |
| Mstat | fixed-point | Nm | 100 | 225 | 390 | 620 |
| | normal | Nm | 80 | 180 | 305 | 500 |
| Operating pressure | | bar | 6 | 6 | 6 | 6 |
| J | Actuation | kgcm² | 8,5 | 20 | 46,1 | 133,1 |
| | Driver | kgcm² | 2,6 | 6 | 14,4 | 31,9 |
| F axial | | N | 930 | 1680 | 2660 | 3360 |
| Diameters | A max H7 | | 32 | 38 | 44 | 55 |
| | B min H7 | | 46 | 55 | 62 | 75 |
| | C | | 81 | 97 | 114 | 134 |
| | D | | 3 | 3 | 3 | 3 |
| Length dimensions | L | | 39 | 46 | 55 | 67 |
| | M | | 34 | 42 | 52 | 64 |
| | N | | 16 | 20 | 19 | 25 |
| | O | | 8,5 | 9,5 | 11,5 | 14 |

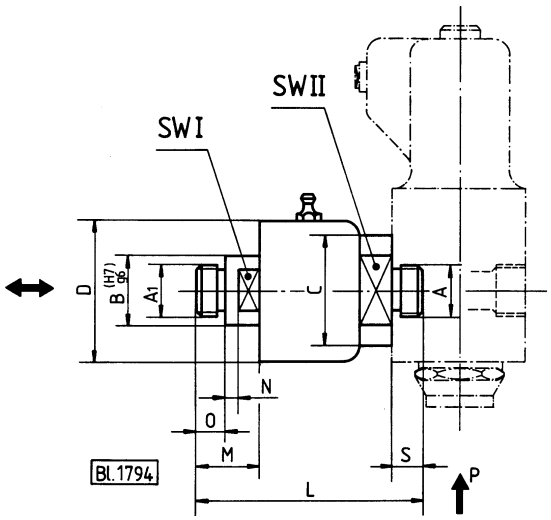
| Series | | | 0412-01.-Size-000000 | | | |
|---|---|---|---|---|---|---|
| Size | | | 07 | 11 | 15 | 23 |
| Mstat | fixed-point | Nm | 85 | 185 | 355 | 630 |
| | normal | Nm | 65 | 145 | 300 | 500 |
| Releasing pressure | | bar | 6 | 6 | 6 | 6 |
| J | Actuation | kgcm² | 8 | 18 | 43 | 125 |
| | Driver | kgcm² | 2,6 | 6 | 14,4 | 31,9 |
| F axial | | N | 840 | 1410 | 2520 | 3420 |
| Diameters | A max H7 | | 32 | 38 | 44 | 55 |
| | B prebored | | 22 | 26 | 30 | 38 |
| | C | | 81 | 97 | 114 | 134 |
| | D | | 3 | 3 | 3 | 3 |
| | E | | 45 | 54 | 54 | 73 |
| Length dimensions | L | | 45,5 | 54,5 | 66,5 | 81 |
| | M | | 34 | 42 | 52 | 64 |
| | N | | 18 | 22 | 33 | 39 |
| | O | | 8,5 | 9,5 | 11,5 | 14 |
| | P | | 6,5 | 8,5 | 11,5 | 14 |

# Rotary inlets for compressed air

**for connecting directly to electromagnetic directional control valves or press safety valves**

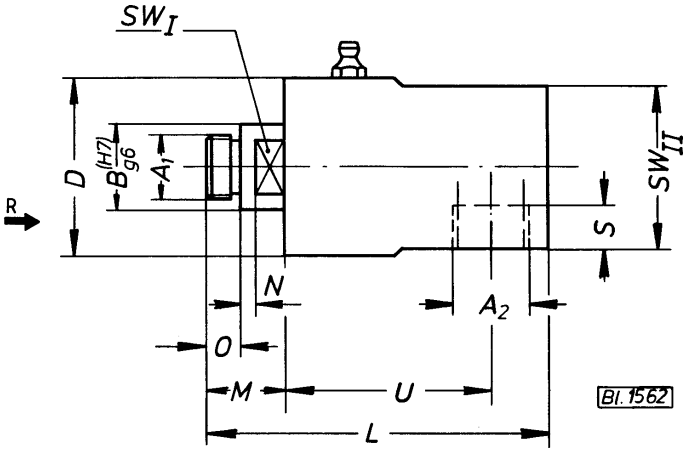
Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE

## Type I
## Straight connection




Ordering example for a rotary inlet with male connections M35x1.5 for A1 and G1A for A: series 0086-006-03-000000.

## Type II
## Angle connection




A tapered thread must be used for the connection A2 with the angle connection.

| Type | Series | A | $A_1$*) | $A_2$ | B | C | D | $SW_I$ | $SW_{II}$ | L | M | N | O | S | U | n max $min^{-1}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | 0086-006-00-000000<br>0086-006-00-002000 | G1/4A | M16x1,5<br>G1/4B | — | 22 | 38 | 50 | 19 | 32 | 89 | 24 | 3 | 12 | 12 | – | 3150 |
| | 0086-006-01-000000<br>0086-006-01-002000 | G1/2A | M22x1,5<br>G1/2B | — | 30 | 48 | 62 | 24 | 41 | 97 | 25 | 3 | 12 | 12 | – | 2100 |
| | 0086-006-02-000000<br>0086-006-02-002000 | G3/4A | M27x1,5<br>G3/4B | — | 35 | 52 | 70 | 27 | 46 | 114 | 30 | 3 | 15 | 15 | – | 1750 |
| | 0086-006-03-000000<br>0086-006-03-002000 | G 1 A | M35x1,5<br>G1 B | — | 45 | 65 | 80 | 32 | 55 | 127 | 33 | 5 | 15 | 17 | – | 1450 |
| | 0088-114-50-000180<br>0088-114-50-002180 | G1 1/2A | M50x1,5<br>G1 1/2B | — | 60 | 85 | 100 | 50 | 75 | 165 | 45 | 5 | 22 | 22 | – | 1450 |
| | 0088-114-65-000180<br>0088-114-65-002180 | G 2 A | M65x1,5<br>G2B | — | 75 | 105 | 125 | 65 | 95 | 200 | 52 | 5 | 25 | 25 | – | 1250 |
| II | 0086-006-00-020000<br>0086-006-00-022000 | — | M16x1,5<br>G1/4B | Rp1/4 | 22 | – | 50 | 19 | 45 | 86 | 24 | 3 | 12 | 12 | 50 | 2500 |
| | 0086-006-01-020000<br>0086-006-01-022000 | — | M22x1,5<br>G1/2B | Rp1/2 | 30 | – | 62 | 24 | 53 | 110 | 25 | 3 | 12 | 14 | 65 | 1500 |
| | 0086-006-02-020000<br>0086-006-02-022000 | — | M27x1,5<br>G3/4B | Rp3/4 | 35 | – | 70 | 27 | 60 | 128 | 30 | 3 | 15 | 16 | 76 | 1250 |
| | 0086-006-03-020000<br>0086-006-03-022000 | — | M35x1,5<br>G1B | Rp1 | 45 | – | 80 | 32 | 70 | 147 | 33 | 5 | 15 | 18 | 86 | 1000 |
| | 0088-114-50-020180<br>0088-114-50-022180 | — | M50x1,5<br>G1 1/2B | Rp1 1/2 | 60 | – | 100 | 50 | 85 | 195 | 45 | 5 | 22 | 20 | 112 | 1450 |
| | 0088-114-65-020180<br>0088-114-65-022180 | — | M65x1,5<br>G2B | Rp 2 | 75 | – | 125 | 65 | 105 | 235 | 52 | 5 | 25 | 22 | 134 | 1250 |

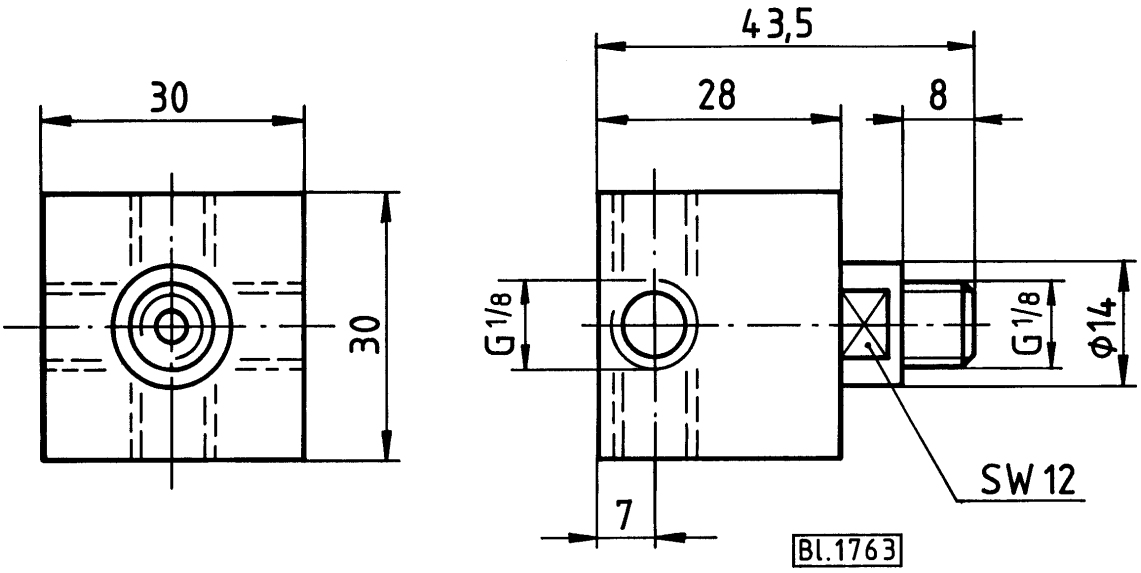
*) Tolerance for A1: "4d" in accordance with DIN 13, page 15, for metric ISO threads and B in accordance with ISO 228/1 or BS 2779 for Whitworth pipe threads.

**Maintenance**
Top up with 6 to 8 g roller bearing grease after approx. 7000 operating hours.

**Fitting instructions:**
Correct operation and long service life can only be guaranteed when the internal part runs totally smoothly. The connection from rigid pipes may only be made with a flexible hose at least 300 mm in length in order that the rotary inlet will not be subjected to stress.
Maximum operating pressure = 6 bar.

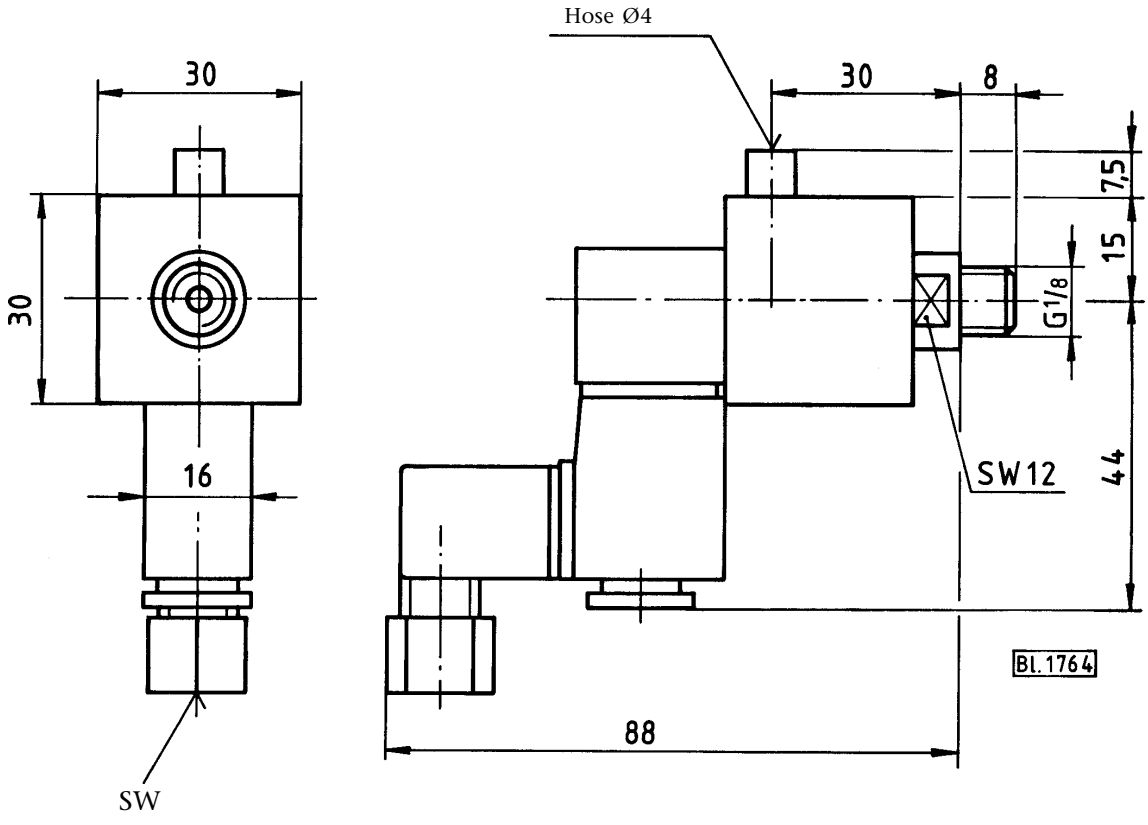
**Rotary inlet G1/8**
**Article No. 0086-006-00-050000**

$p_{max}$ = 15 bar
$n_{max}$ = 1500 $min^{-1}$



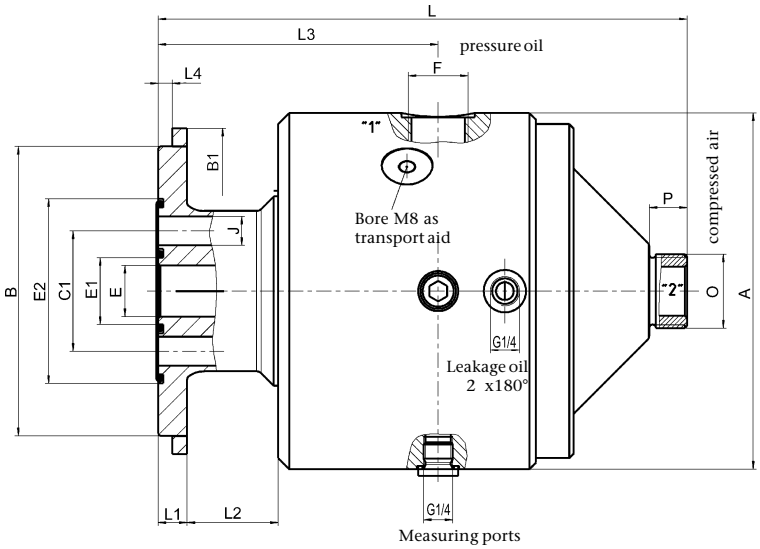

**Rotary inlet G1/8 with 3/2 directional control valve 24 V DC, 1.3 W**
**Article No. 0086-006-00-055000**

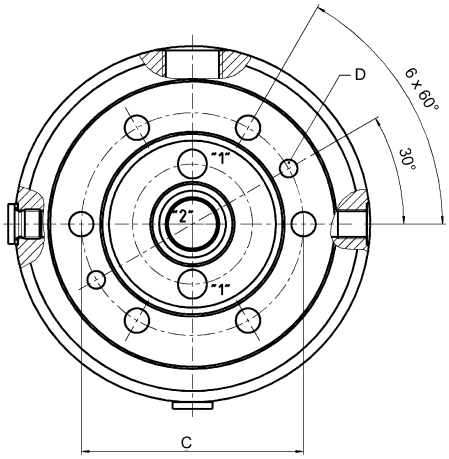
$p_{max}$ = 8 bar
$n_{max}$ = 1500 $min^{-1}$

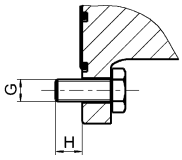


# Rotary inlets
# for compressed air and pressurised oil
## Two channel

Ortlinghaus SEIT 1898
DIE TECHNIK DER KONTROLLIERTEN MOMENTE



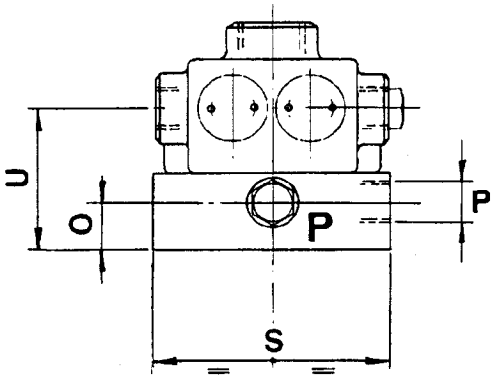

| Series<br>Size | | 0088-226-Size-001340<br>22 | <br>27 |
|---|---|---|---|
| n max | $min^{-1}$ | 1500 | 1400 |
| p max oil | bar | 70 | 70 |
| p max air | bar | 6 | 6 |
| Weight | approx. kg | 5 | 15,5 |
| Diameters | A | 120 | 160 |
| | B g7 | 81 | 130 |
| | B1 | 85 | - |
| | C | 68 | 100 |
| | C1 | 34 | 54 |
| | D | 6,2 | 8 |
| | E | 14 | 23 |
| | E1 | 17 | 30 |
| | F[1)] | 56,6 | 83 |
| | G | $G^1/_2$ | $G^3/_4$ |
| | J | M8 | M10 |
| | O | $G^3/_4A$ | G1A |
| Length dimensions | H | 14 | 12 |
| | L | 174 | 238 |
| | L1 | 11 | 13 |
| | L2 | 33 | 41 |
| | L3 | 89 | 126 |
| | L4 | 5 | - |
| | P | 15 | 17 |

**3 and 4 channel versions, size 35 (F = G1) on request.**

The following parts are supplied:
Hexagonal screw DIN 933
O-rings

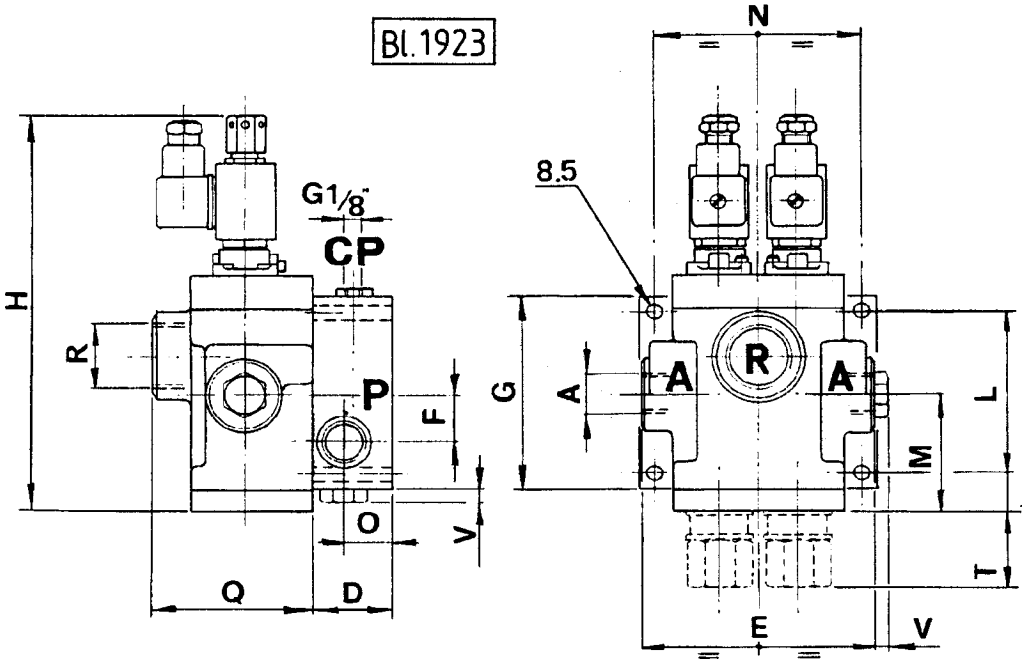
[1)] Holes G... shape X to DIN 3852 T2
(for cylindrical screwed plugs)

**The split seal system used is prone to leakage. Arrange the leakage pipe so that it points vertically downwards and allows unpressurised drainage.**

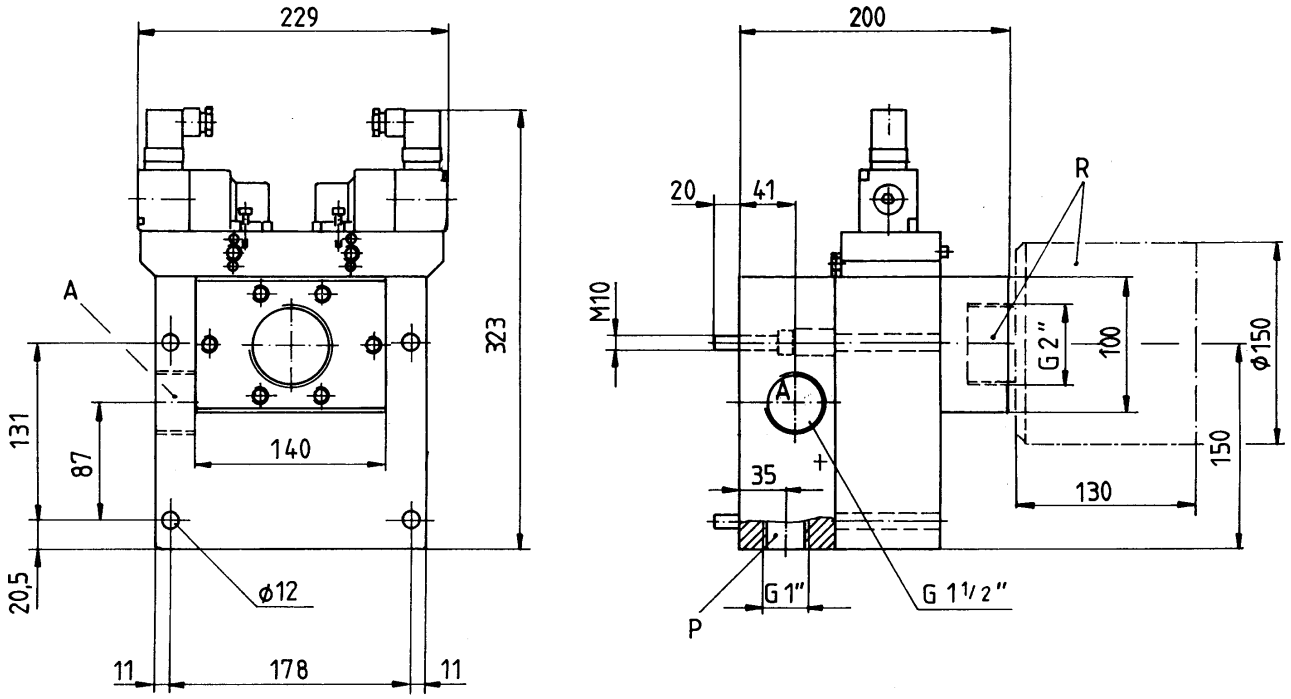



Connections:

P = Nominal pressure max. 8 bar
A = Operating pressure (clutch)
R = Exhaust (silencer is part of the equipment supplied)




| Series / Size-version | 0085-710-Size-Version 000000 -13000 | -13001 | -13002 | -31000 | -31001 | -31002 |
|---|---|---|---|---|---|---|
| Voltage | 24 V, DC | 220 V, 50 Hz | 110 V, 50 Hz | 24 V, DC | 220 V, 50 Hz | 110 V, 50 Hz |
| max. pressure bar | 8 | | | 8 | | |
| min. pressure bar | 2 | | | 2 | | |
| Power switched W (DC) | 9,5 | | | 9,5 | | |
| switched VA (AC) | 25 | | | 25 | | |
| holding VA (AC) | 14 | | | 14 | | |
| Weight approx. kg | 3,8 | | | 7,5 | | |
| Diameters A | G 1/2 | | | G 1 | | |
| P | G 1/2 | | | G 3/4 | | |
| R | G 1 | | | G 1 1/2 | | |
| Length dimensions D | 40 | | | 40 | | |
| E | 115 | | | 166 | | |
| F | 26 | | | 35 | | |
| G | 100 | | | 120 | | |
| H | 202 | | | 239 | | |
| I | 17 | | | 8 | | |
| L | 84 | | | 104 | | |
| M | 60 | | | 63 | | |
| N | 104 | | | 154 | | |
| O | 25 | | | 20 | | |
| Q | 79 | | | 104 | | |
| S | 120 | | | 170 | | |
| T | 40,5 | | | 40,5 | | |
| U | 74,5 | | | 83,5 | | |
| V | 8 | | | 7 | | |




Connections:
P = Nominal pressure max. 8 bar
A = Operating pressure (clutch)
R = Exhaust (silencer is part of the equipment supplied)

| Series<br>Size-version | 0085-710-Size-Version 000000<br>-41000 | <br>-41001 | <br>-41002 |
|---|---|---|---|
| Voltage | 24 V, DC | 220 V, 50 Hz | 110 V, 50 Hz |
| max. pressure bar<br>min. pressure bar | 8<br>2,5 | | |
| Power<br>switched W (DC)<br>switched VA (AC)<br>holding VA (AC) | <br>15<br>40<br>22 | | |
| Weight approx. kg | 17,6 | | |