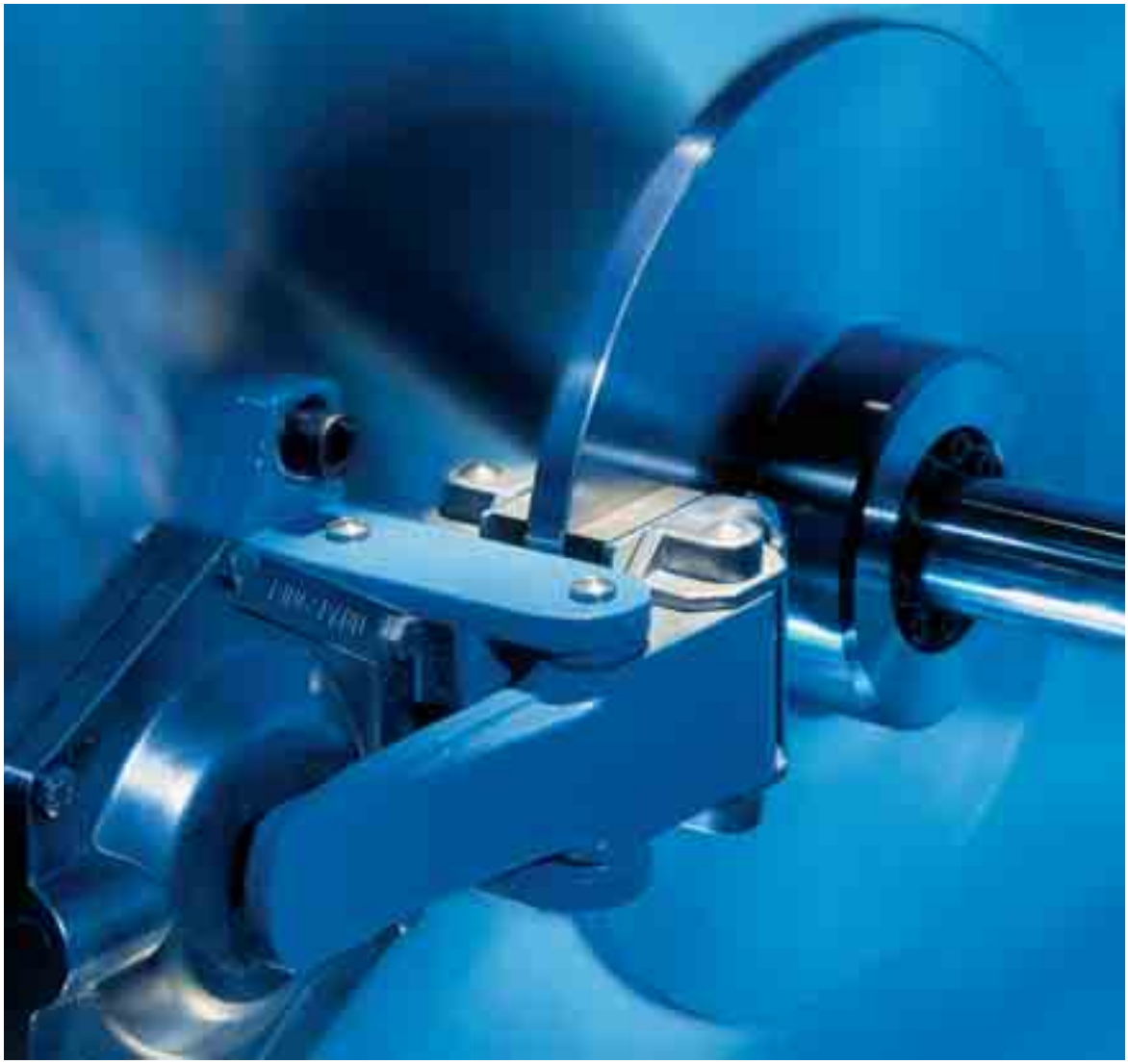
RINGSPANN®
Power Transmission

Industrial Disc Brakes

46



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Issue 09/04 · We reserve the right to make technical modifications.

Why RINGSPANN Disc Brakes?

No Drives without Disc Brakes

For a long time now Disc Brakes have been tried and tested in the aviation and automotive industry, and increasing awareness of operational safety and ever stricter rules on accident prevention have made them indispensable. After all, wherever there is acceleration, there must also be braking. A reliable and economic solution to these problems are RINGSPANN Disc Brakes.

Advantages of RINGSPANN Disc Brakes

The following features make the RINGSPANN Disc Brakes stand out:

- The well thought-out design of RINGSPANN Disc Brakes permits a **simple and space-saving arrangement,** even in existing installations.
- Due to the even friction surfaces the RINGSPANN Disc Brakes are not subject to any automatic amplification effect which is always a problem with drum brakes. Therefore, disc brakes guarantee **high torque stability** even when friction variations occur.
- The open design of the RINGSPANN Disc Brakes with their excellent ventilation characteristics guarantee **ideal heat dissipation.**
- The considerably **lower inertia moment** compared with that of drum brakes permits economical dimensioning, shortened cycle times and reduced energy consumption.
- Highly wear-resistant friction material and large braking surfaces ensure long intervals between maintenance. The practical and robust design of RINGSPANN Disc Brakes guarantees that **maintenance is easy and uncomplicated.** The friction pads are easily replaced without the need to dismount the brake.
- RINGSPANN Disc Brakes are fitted with **swivel mounted friction blocks;** this ensures that the friction blocks are always in full face contact with the brake disc. When the brake is released, the friction blocks are lifted safely off the brake by a spring, irrespective of the installation arrangement.

For each Application the right Solution

RINGSPANN Disc Brakes require minimal installation dimensions. Brake Callipers or Brake Saddles may be arranged in any position on brake discs of varying diameters. By using several Brake Callipers on the same disc it is possible to increase the brake torque without the need to enlarge the installation dimensions to any great extent.

The universal concept of the RINGSPANN Disc Brake fulfills various functions:

- As a **parking brake,** it prevents the unintended start of a stationary shaft.
- As a **stopping brake,** it brings a rotating shaft to a standstill in a short time, for example during a power failure or an emergency stop.
- As a **control brake,** it effectively maintains material tension.

The Product Range

RINGSPANN offers a comprehensive range of Disc Brakes:

- **Spring-activated Brake Callipers;** release is either pneumatic, hydraulic or manual by means of a pull cable.
- **Pneumatically activated Brake Callipers;** with spring release
- **Manually activated Brake Callipers;** by hand with a threaded hand wheel or a pull cable
- **Hydraulically activated Brake Saddles;** with spring release

Accessories

The following accessories are available for special applications:

- All brakes can be supplied with an electric **indicator for friction block wear**
- To prolong the operating life, **friction pads with double the friction surface** are available for Brake Callipers sizes 15, 20 and 30
- Two standard types of **brake discs** are available with diameters ranging from 125 mm up to 1 600 mm.

Service

RINGSPANN not only supplies Industrial Disc Brakes, but is also available for comprehensive consultation. RINGSPANN offers the safety that you need.

Overview of RINGSPANN Disc Brakes

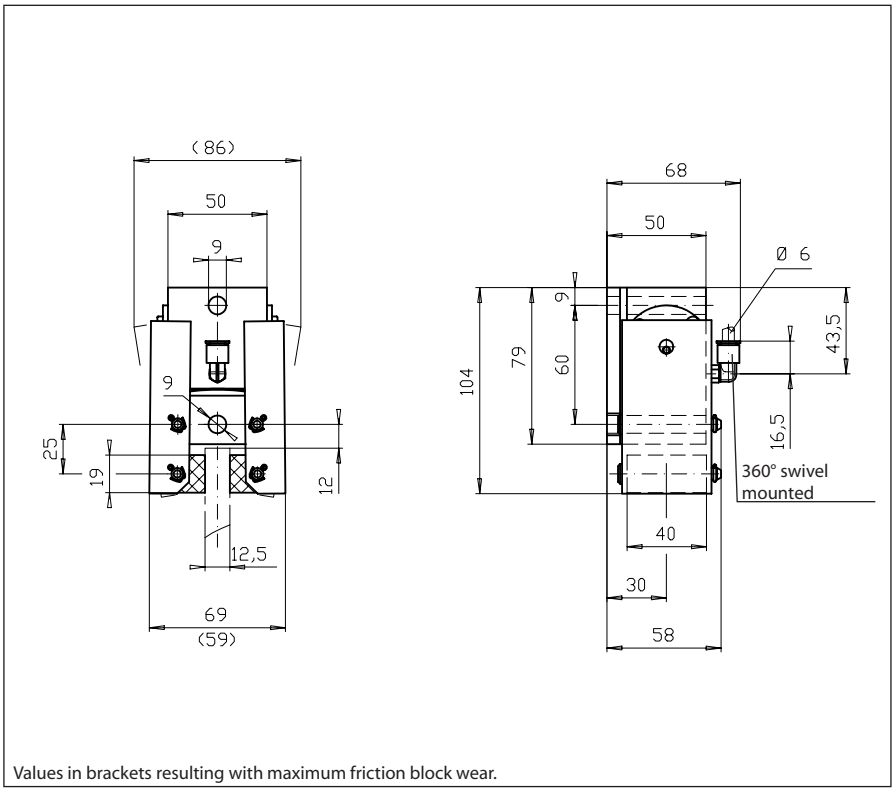
	Activation					Release					
	Spring	Pneumatic	Hydraulic	Manual with threaded spindle	Manual with pull cable	Spring	Pneumatic	Hydraulic	Manual with threaded spindle	Manual with pull cable	
Brake Calliper Type DH 10 FPM											
Brake Calliper Type DV 20 FPM											
Brake Calliper Type DV 30 FPM											
Brake Calliper Type DV 30 FPA											
Brake Calliper Type DH 30 FPM											
Brake Calliper Type DH 30 FPA											
Brake Calliper Type DVH 40 FPM											
Brake Calliper Type DV 20 FHM											
Brake Calliper Type DV 30 FHA											
Brake Calliper Type DH 30 FHA											
Brake Calliper Type DV 20 FKM											
Brake Calliper Type DH 5 P											3 - 15
Brake Calliper Type DH 10 P											
Brake Calliper Type DH 15 P											
Brake Calliper Type DV 20 P											
Brake Calliper Type DV 30 P											
Brake Calliper Type DH 30 P											
Brake Calliper Type DVH 40 P											
Brake Calliper Type DH 10 MS											
Brake Calliper Type DV 20 MS											
Brake Calliper Type DV 20 MK											
Brake Saddle Type HPW 40 R											
Brake Saddle Type HPW 63 R											
Brake Saddle Type HPW 101 R											

Maximum braking torque [Nm]	Type of mounting brake to machine		Adjustment in case of friction block wear		Page
	Parallel to brake disc	At right angle to brake disc	Manual	Automatic	
15 - 50					6
180 - 610					7
640 - 2 185					8
640 - 2 185					9
640 - 2 185					10
640 - 2 185					11
5 100 - 14 900					12
180 - 610					14
640 - 2 185					15
640 - 2 185					16
153 - 500					17
					18
3 - 80					19
17 - 430					20
25 - 630					21
93 - 4 360					22
93 - 4 360					23
1 008 - 23 770					24
20 - 75					26
140 - 485					27
17 - 600					28
79 - 1 300					29
285 - 4 690					30
1 311 - 21 200					31

* The stated braking torques relate to the standard brake discs shown in the catalogue.
Higher braking torques are possible by the use of several callipers or larger brake disc diameters.

Brake Calliper DH 10 FPM
spring-activated – pneumatically released





Values in brackets resulting with maximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with air pressure
- Manual adjustment to counter friction block wear
- Integrated pistons
- Surface areas protected against corrosion
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.102

Compressed air connection:
L-shaped screw coupling connector for outer diameter 6 mm

Air pressure: min. 5 bar, max. 8 bar

Air consumption:
max. 3 cm^3 per actuation

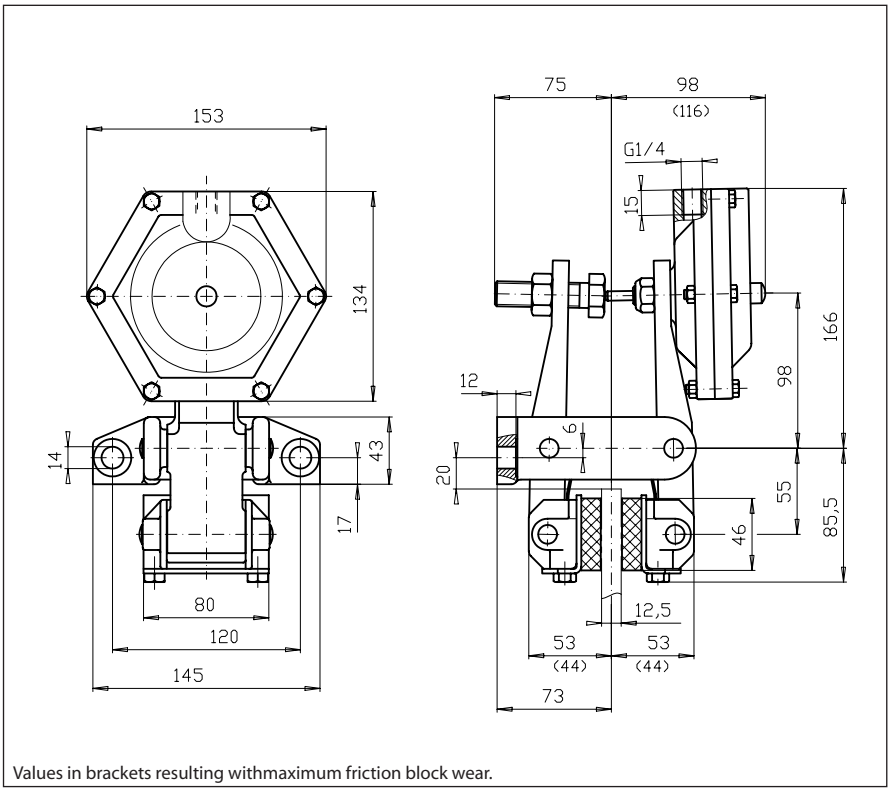
Weight: 1 kg

Thickness of brake disc: 12.5 mm

Brake disc diameter mm	Max. braking torque Nm
125	15
150	17
200	27
250	34
300	42
355	50

Brake Calliper DV 20 FPM
spring-activated – pneumatically released





Values in brackets resulting withmaximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with air pressure
- Manual adjustment to counter friction block wear
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article no: 4457.103.907

Brake chamber is mounted on the right, as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Compressed air connection: G 1/4

Air pressure: min. 5 bar, max. 7 bar

Air consumption:
max. 17 cm^3 per actuation

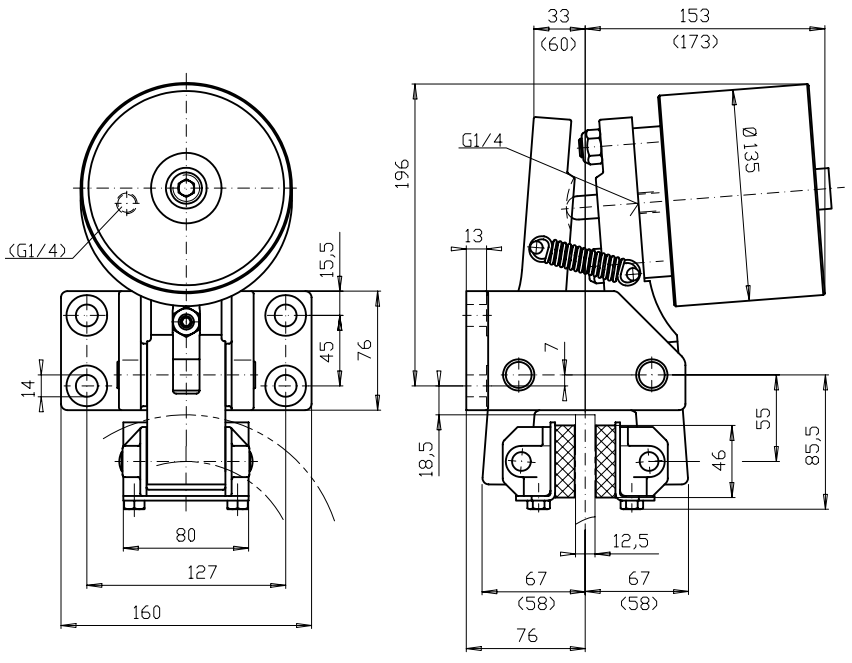
Weight: 5.2 kg

Thickness of brake disc: 12.5 mm

Brake disc diameter mm	Max. braking torque Nm
200	180
250	250
300	320
355	390
430	490
520	610

Brake Calliper DV 30 FPM
spring-activated – pneumatically released





Dimensions in brackets resulting with maximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with air pressure
- Manual adjustment to counter friction block wear
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.105

Brake chamber is mounted on the right, as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Compressed air connection: G 1/4

Air pressure: min. 5 bar, max. 8 bar

Air consumption:
max. 48 cm^3 per actuation

Weight: 13.5 kg

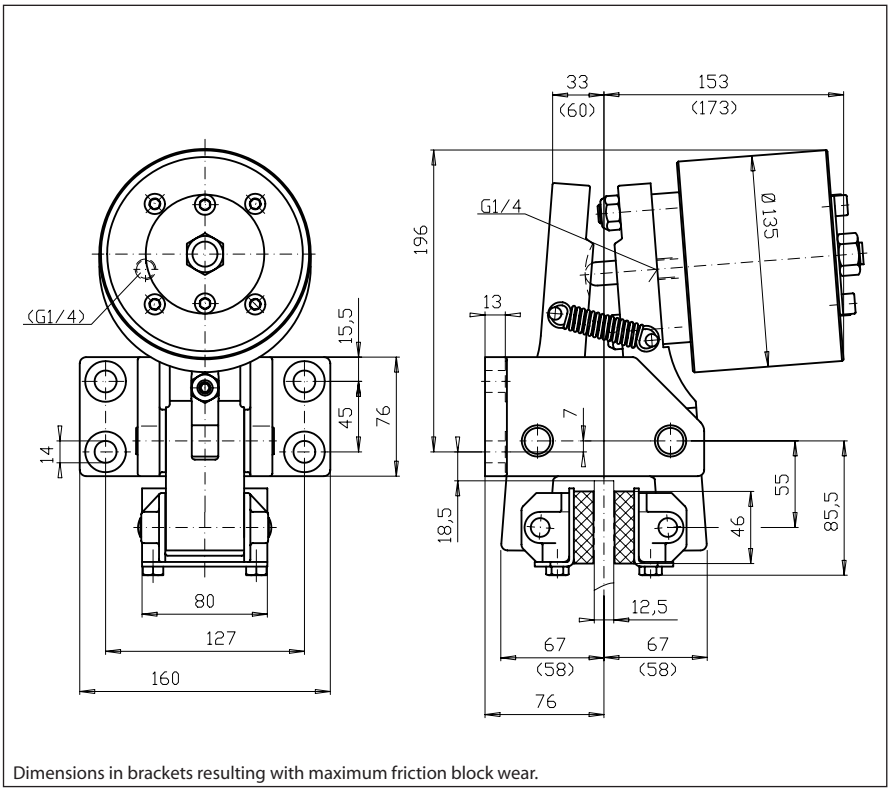
Thickness of brake disc: 12.5 mm

Special type of Brake Calliper for brake disc thickness of 25 mm available on request.

Brake disc diameter mm	Max. braking torque Nm
200	640
250	895
300	1 135
355	1 400
430	1 760
520	2 185

Brake Calliper DV 30 FPA
spring-activated – pneumatically released





Dimensions in brackets resulting with maximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with air pressure
- Automatic adjustment to counter friction block wear ensures constant braking force
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.126

Brake chamber is mounted on the right, as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Compressed air connection: G 1/4

Air pressure: min. 5 bar, max. 8 bar

Air consumption:
max. 48 cm^3 per actuation

Weight: 13.9 kg

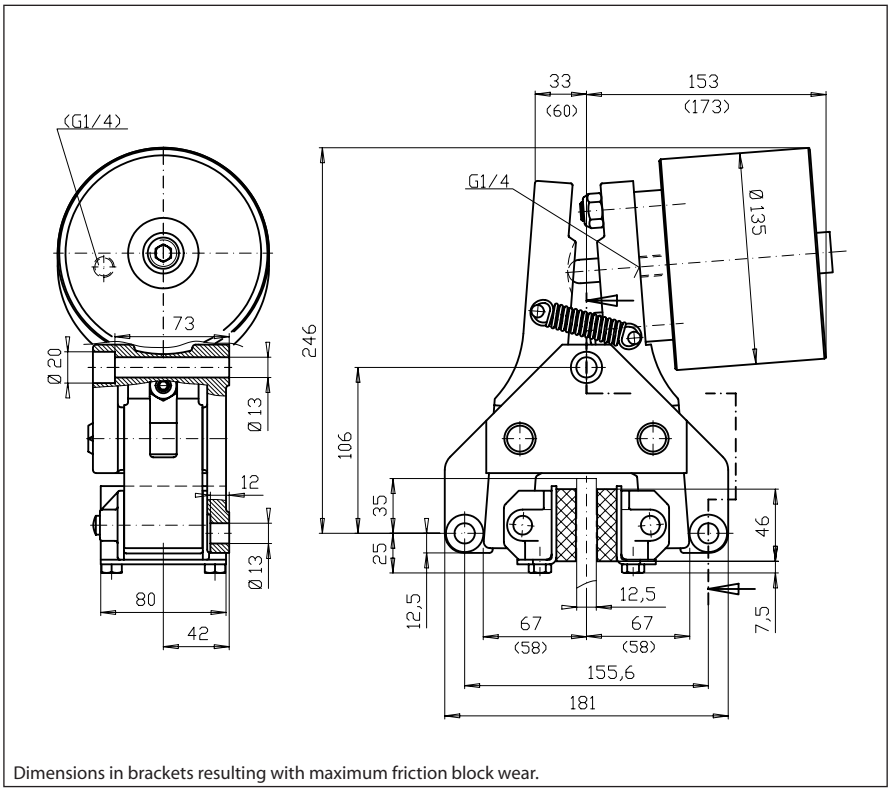
Thickness of brake disc: 12.5 mm

Special type of Brake Calliper for brake disc thickness of 25 mm available on request.

Brake disc diameter mm	Max. braking torque Nm
200	640
250	895
300	1 135
355	1 400
430	1 760
520	2 185

Brake Calliper DH 30 FPM
spring-activated – pneumatically released





Dimensions in brackets resulting with maximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with air pressure
- Manual adjustment to counter friction block wear
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.116

Brake chamber is mounted on the right, as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Compressed air connection: G 1/4

Air pressure: min. 5 bar, max. 8 bar

Air consumption:
max. 48 cm^3 per actuation

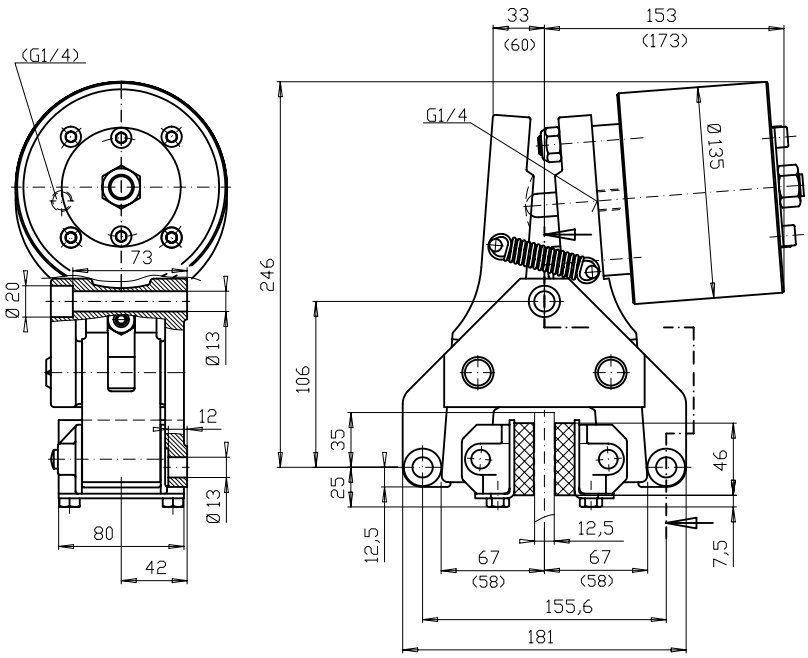
Weight: 13 kg

Thickness of brake disc: 12.5 mm

Brake disc diameter	Max. braking torque
mm	Nm
200	640
250	895
300	1 135
355	1 400
430	1 760
520	2 185

Brake Calliper DH 30 FPA
spring-activated – pneumatically released





Dimensions in brackets resulting with maximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with air pressure
- Automatic adjustment to counter friction block wear ensures constant braking force
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.129

Brake chamber is mounted on the right, as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Compressed air connection: G 1/4

Air pressure: min. 5 bar, max. 8 bar

Air consumption:
max. 48 cm^3 per actuation

Weight: 13.5 kg

Thickness of brake disc: 12.5 mm

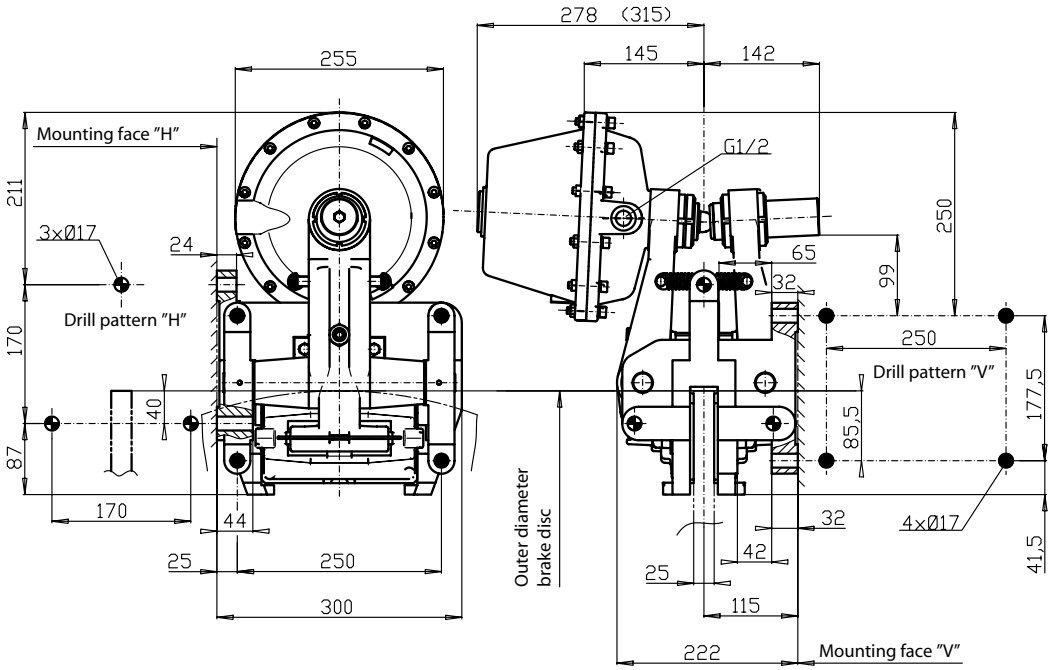
Brake disc diameter mm	Max. braking torque Nm
200	640
250	895
300	1 135
355	1 400
430	1 760
520	2 185

Brake Callipers DVH 40 FPM
spring-activated – pneumatically released



Advantages

- Safety brake; pressure is produced by spring force, opening with air pressure
- Manual adjustment to counter friction block wear
- Mounting of the brake to the machine, can be made either parallel or at right angles to the brake disc
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc



Brake chamber mounted opposite to mounting face„V".
Dimensions in brackets resulting with maximum friction block wear.



Frame design

An outstanding feature of the Brake Calliper DVH 40 FPM is its unique frame design for universal mounting:

The brake can be mounted to the machine either parallel or at right-angles to the brake disc.

Technical Data

Article number: 4457.400.601

Compressed air connection: G 1/2

Air pressure: min. 5.5 bar, max. 8.5 bar

Air consumption:
max. 200 cm^3 per actuation

Weight: 62 kg

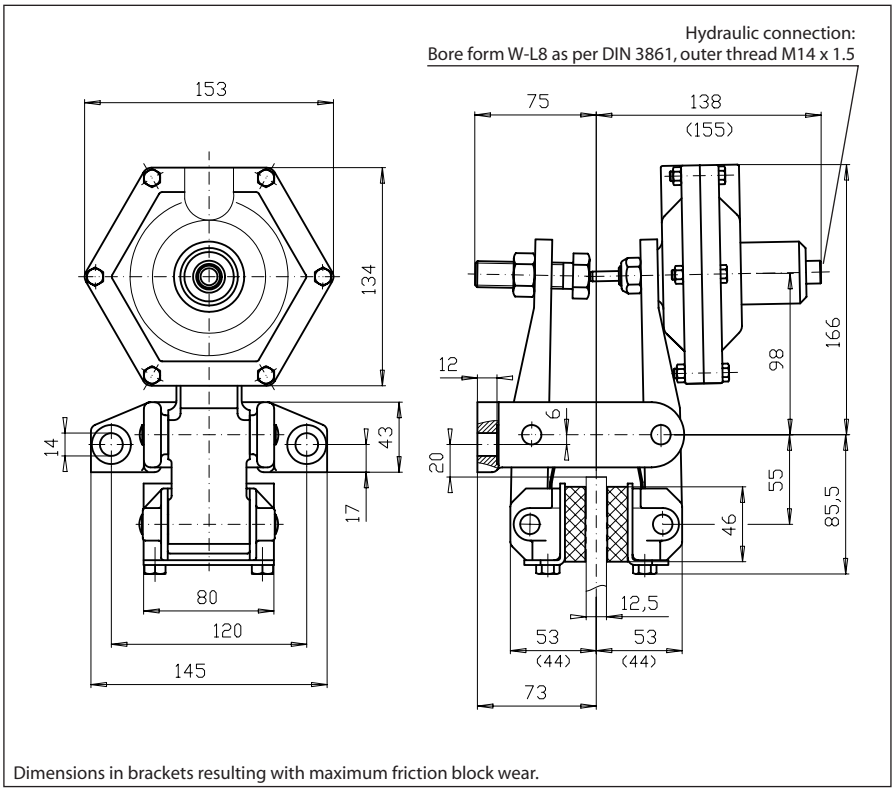
Thickness of brake disc: 25 mm

Special type of Brake Calliper for higher braking torques available on request.

Brake disc diameter mm	Max. braking torque Nm
630	5 100
710	5 900
800	6 800
900	7 800
1 000	8 900
1 250	11 400
1 600	14 900

Brake Calliper DV 20 FHM
spring-activated – hydraulically released





Dimensions in brackets resulting with maximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with oil pressure
- Manual adjustment to counter friction block wear
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.103.915

Brake chamber is mounted on the right, as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Pressure oil connection: See drawing

Operating pressure:
min. 65 bar, max. 100 bar

Oil requirement per braking action:
2.5 cm^3

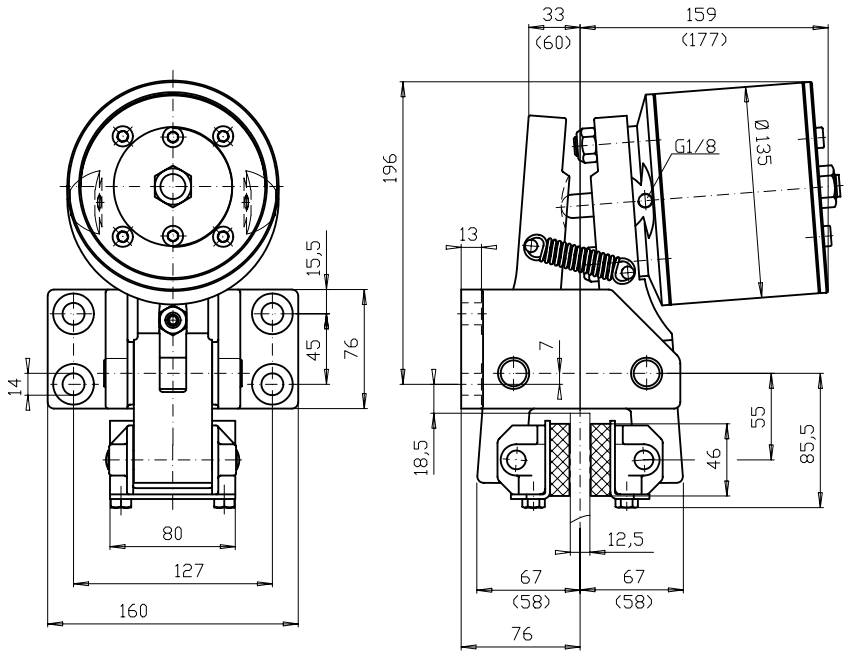
Weight: 5.4 kg

Thickness of brake disc: 12.5 mm

Brake disc diameter	Max. braking torque
mm	Nm
200	180
250	250
300	320
355	390
430	490
520	610

Brake Calliper DV 30 FHA
spring-activated – hydraulically released





Dimensions in brackets resulting with maximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with oil pressure
- Automatic adjustment to counter friction block wear ensures constant braking force
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.136

Brake chamber is mounted on the right, as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Pressure oil connection: G 1/8

Operating pressure:
min. 40 bar, max. 100 bar

Oil requirement per braking action:
6 cm^3

Weight: 15.3 kg

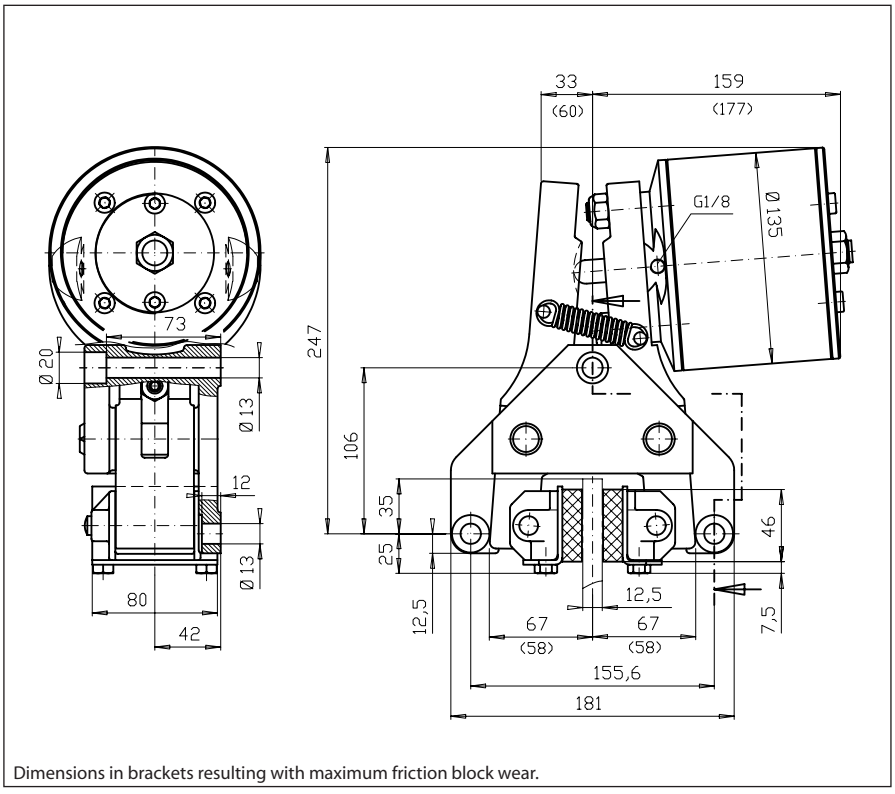
Thickness of brake disc: 12.5 mm

Special type of brake calliper for brake disc thickness of 25 mm available on request.

Brake disc diameter mm	Max. braking torque Nm
200	640
250	895
300	1 135
355	1 400
430	1 760
520	2 185

Brake Calliper DH 30 FHA
spring-activated – hydraulically released





Dimensions in brackets resulting with maximum friction block wear.

Advantages

- Safety brake; pressure is produced by spring force, opening with oil pressure
- Automatic adjustment to counter friction block wear ensures constant braking force
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.133

Brake chamber is mounted on the right, as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Pressure oil connection: G 1/8

Operating pressure:
min. 40 bar, max. 100 bar

Oil requirement per braking action:
6 cm^3

Weight: 14.9 kg

Thickness of brake disc: 12.5 mm

Brake disc diameter mm	Max. braking torque Nm
200	640
250	895
300	1 135
355	1 400
430	1 760
520	2 185

Brake Calliper DV 20 FKM

spring-activated - manually released

with pull cable



Advantages

- Safety brake; pressure is produced by spring force, opening is effected by operating a pull cable
- Manual adjustment to counter friction block wear
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc
- Ease of operation, with highly flexible cable available at the required length and with a choice of various operating levers

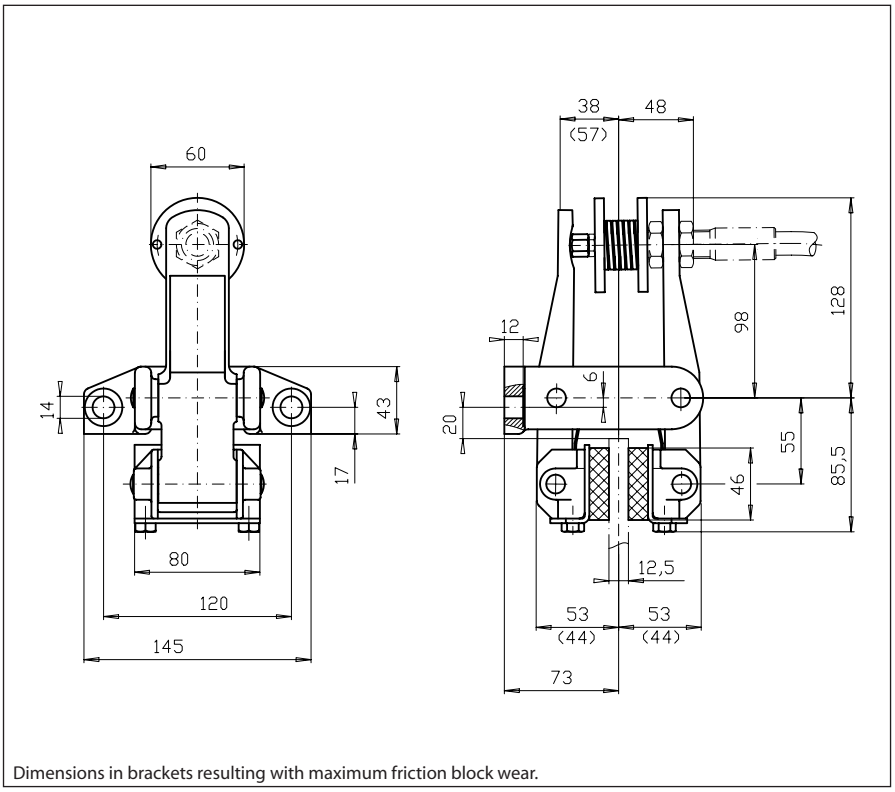
Technical Data

Article number: 4457.201.706

Pull cable is mounted on the right, as shown in the drawing. Please indicate on your order if the pull cable is to be mounted on the left.

Weight: 4.4 kg

Thickness of brake disc: 12.5 mm



Dimensions in brackets resulting with maximum friction block wear.

Brake disc diameter mm	Max. braking torque Nm
200	150
250	210
300	260
355	320
430	400
520	500

Brake Calliper DH 5 P
pneumatically activated – spring released



Advantages

- Pressure is produced by compressed air, opening with spring force
- Integrated pistons
- Surface areas protected against corrosion
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.110

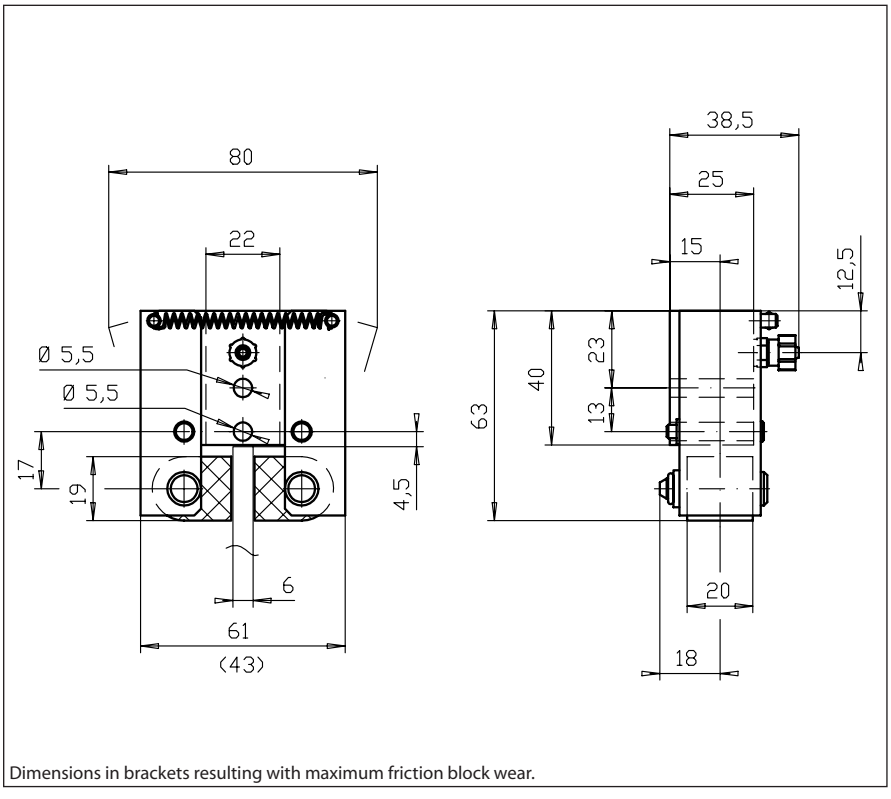
Compressed air connection:
Screw coupling connector
for outer diameter 4.3 mm

Operating pressure: max. 6 bar

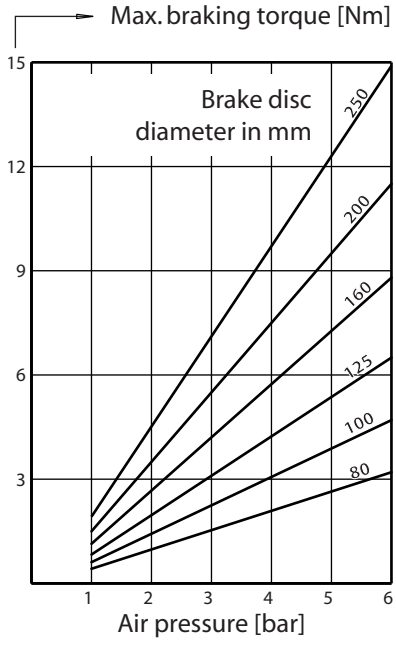
Air consumption:
max. 3 cm^3 per actuation

Weight: 0.4 kg

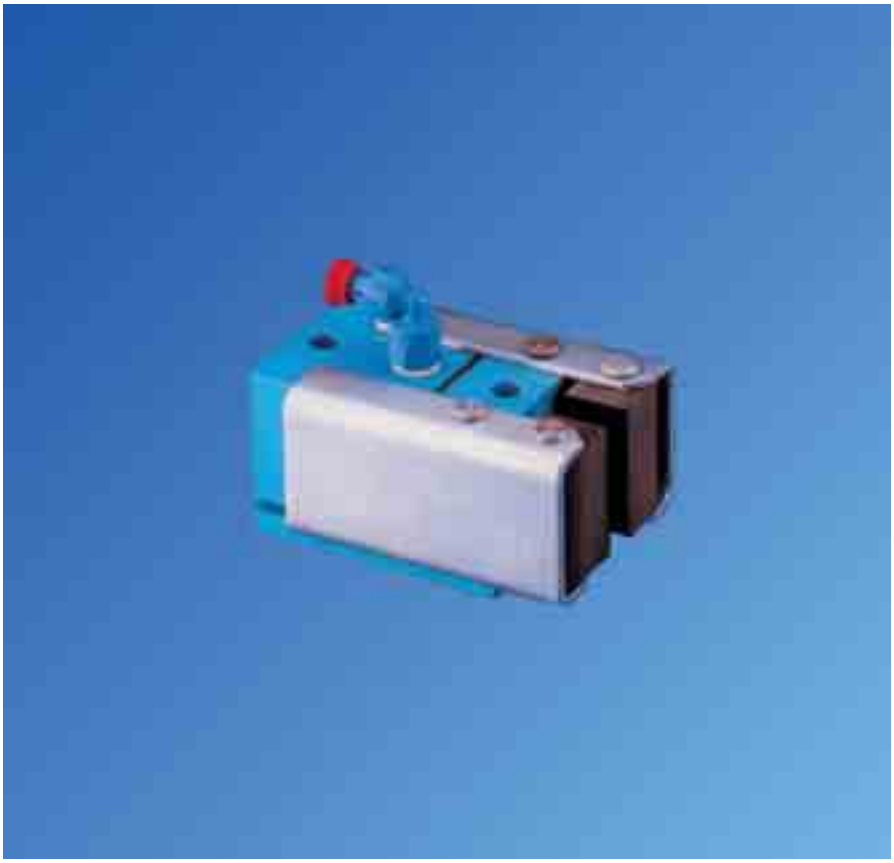
Thickness of brake disc: 6 mm



Dimensions in brackets resulting with maximum friction block wear.



Brake Calliper DH 10 P
pneumatically activated – spring released



Advantages

- Pressure is produced by compressed air, opening with spring force
- Integrated pistons
- Surface areas protected against corrosion
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.101

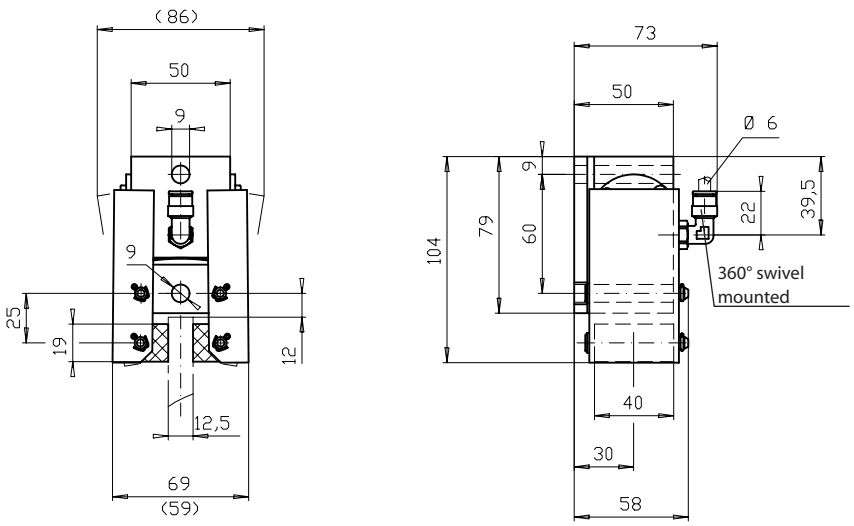
Compressed air connection:
L-shaped screw coupling connector for outer diameter 6 mm

Operating pressure: max. 6 bar

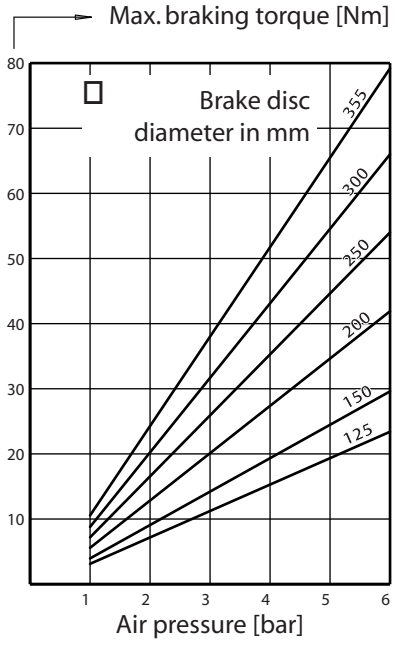
Air consumption:
max. 10 cm^3 per actuation

Weight: 1.1 kg

Thickness of brake disc: 12.5 mm



Dimensions in brackets resulting with maximum friction block wear.



Brake Calliper DH 15 P
pneumatically activated – spring released



Advantages

- Pressure is produced by compressed air, opening with spring force
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.117

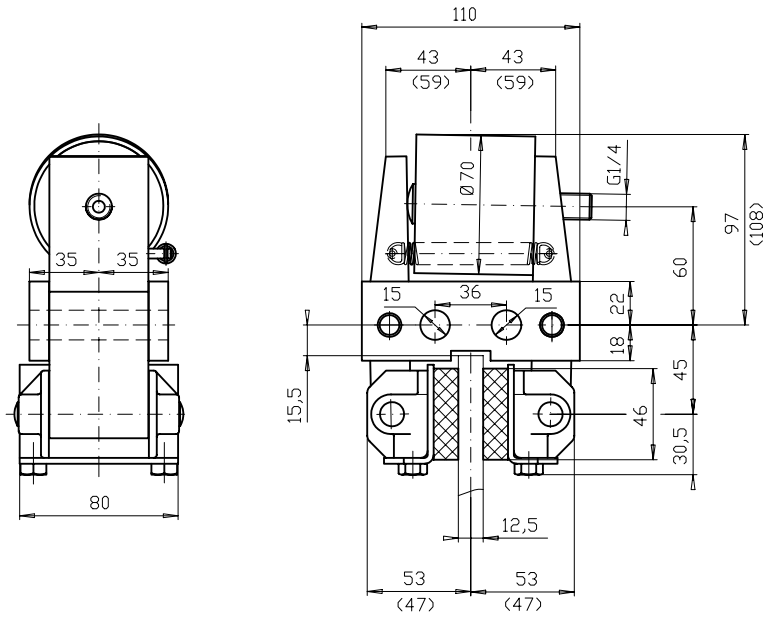
Compressed air connection: G 1/4

Operating pressure: max. 6 bar

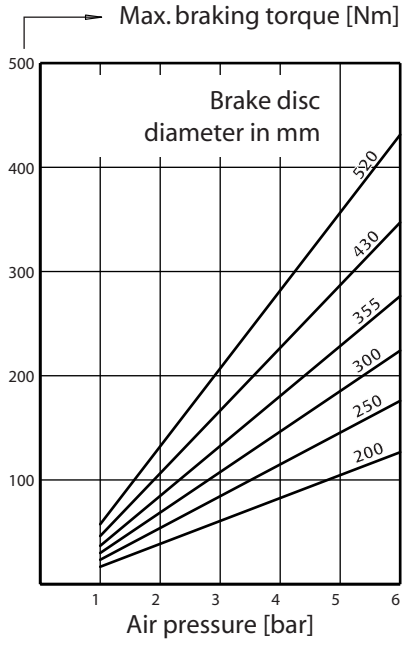
Air consumption:
max. 124 cm^3 per actuation

Weight: 4.6 kg

Thickness of brake disc: 12.5 mm



Dimensions in brackets resulting with maximum friction block wear.



Brake Calliper DV 20 P
pneumatically activated – spring released



Advantages

- Pressure is produced by compressed air, opening with spring force
- Diaphragm pressure element
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.103.161

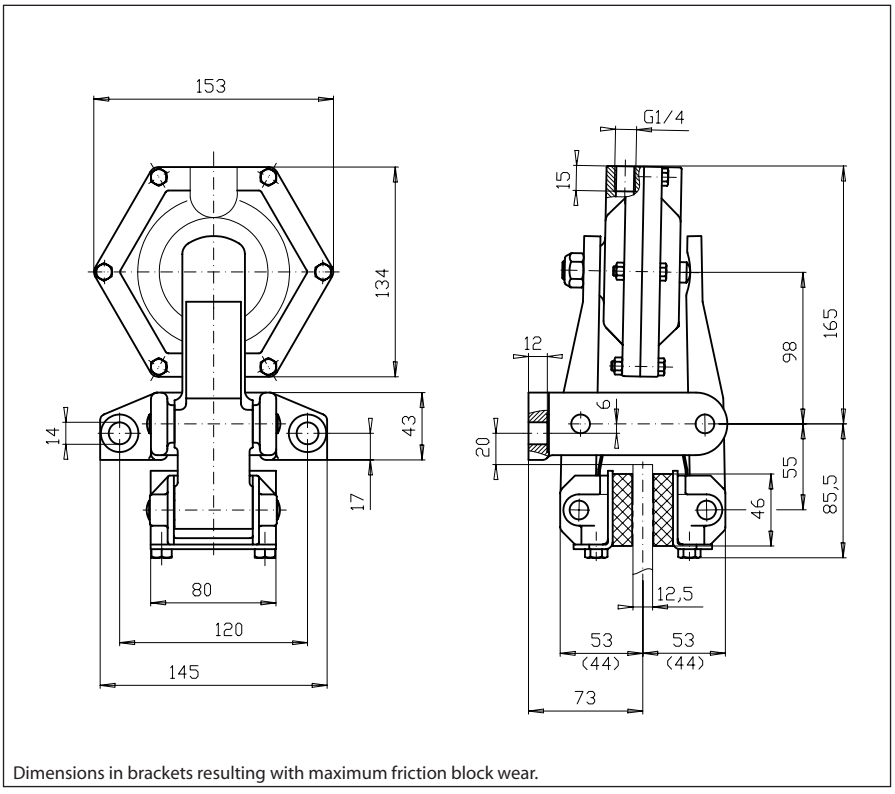
Compressed air connection: G 1/4

Operating pressure: max. 6 bar

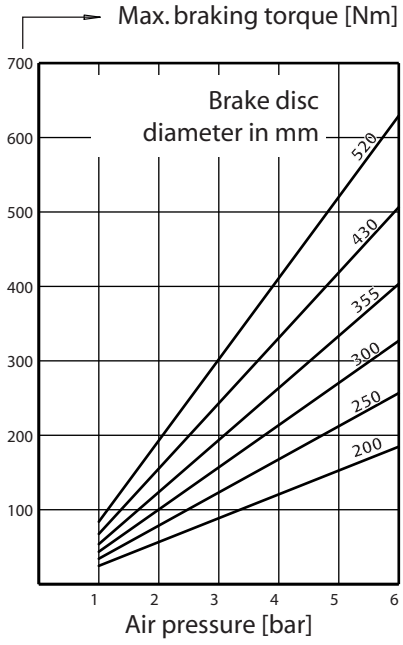
Air consumption:
max 120 cm^3 per actuation

Weight: 4.8 kg

Thickness of brake disc: 12.5 mm



Dimensions in brackets resulting with maximum friction block wear.



Brake Calliper DV 30 P

pneumatically activated – spring released



Advantages

- Pressure is produced by compressed air, opening with spring force
- Flat piston pressure cylinder
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.901.124

Brake chamber is mounted on the right as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

Compressed air connection: G 1/4

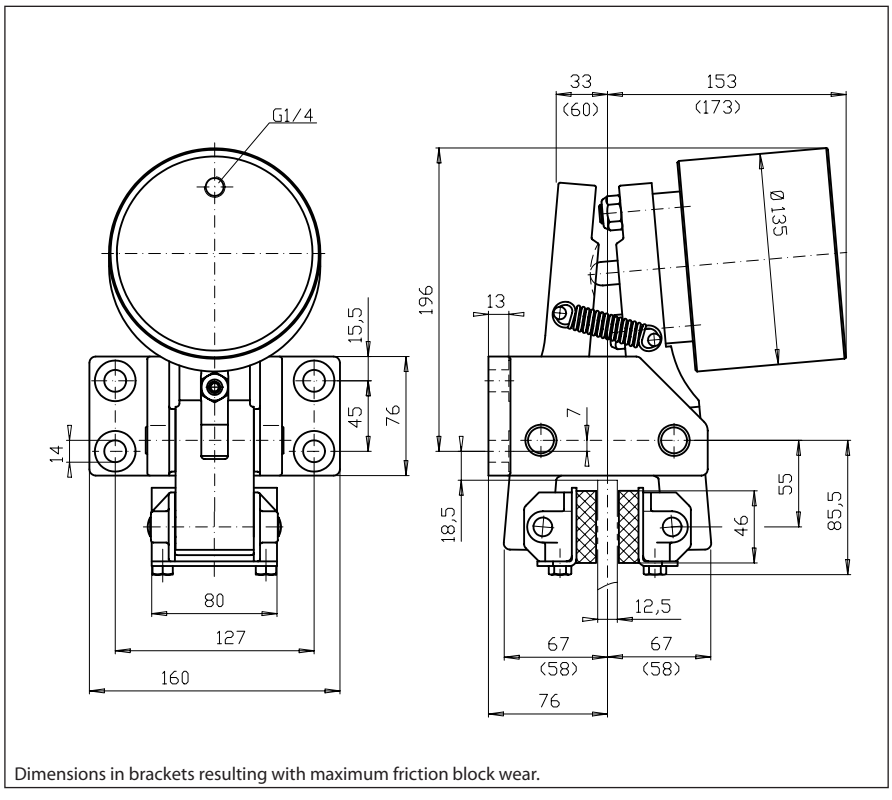
Operating pressure: max. 6 bar

Air consumption:
max. 490 cm^3 per actuation

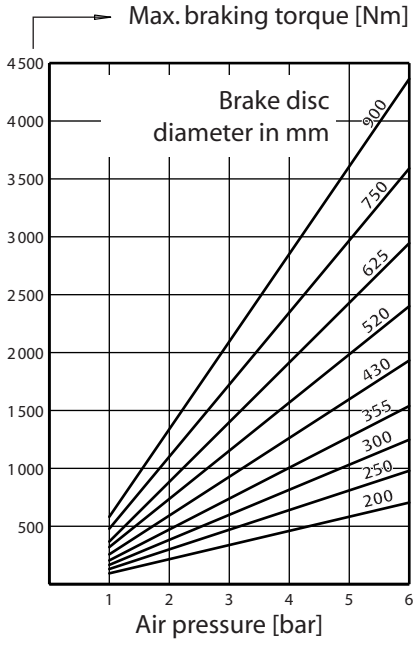
Weight: 12.7 kg

Thickness of brake disc: 12.5 mm

Special type of Brake Calliper for brake disc thickness of 25 mm available on request.



Dimensions in brackets resulting with maximum friction block wear.



Brake Calliper DH 30 P
pneumatically activated – spring released



Advantages

- Pressure is produced by compressed air, opening with spring force
- Flat piston pressure cylinder
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

Technical Data

Article number: 4457.300.100

Brake chamber is mounted on the right as shown in the drawing. Please indicate on your order if the brake chamber is to be mounted on the left.

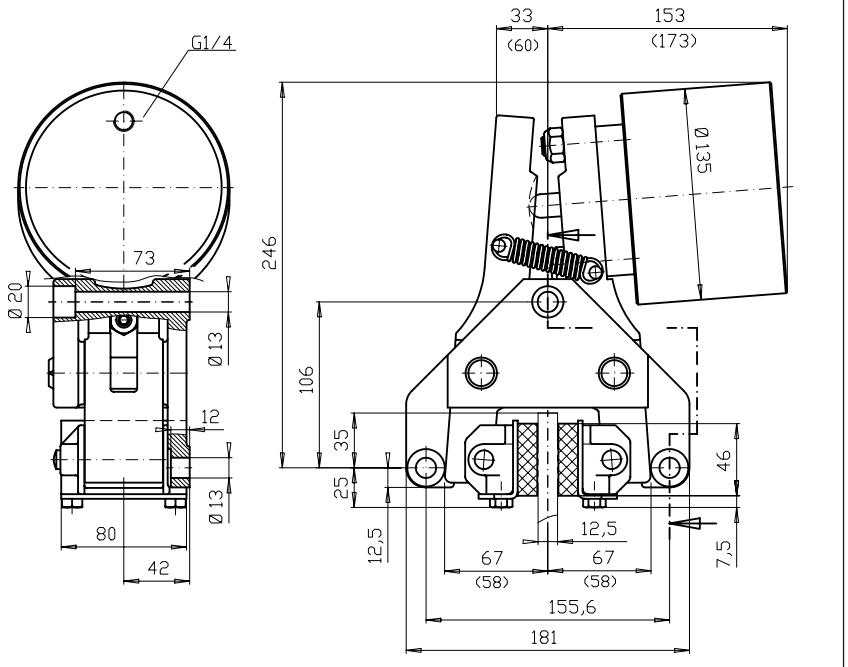
Compressed air connection: G 1/4

Operating pressure: max. 6 bar

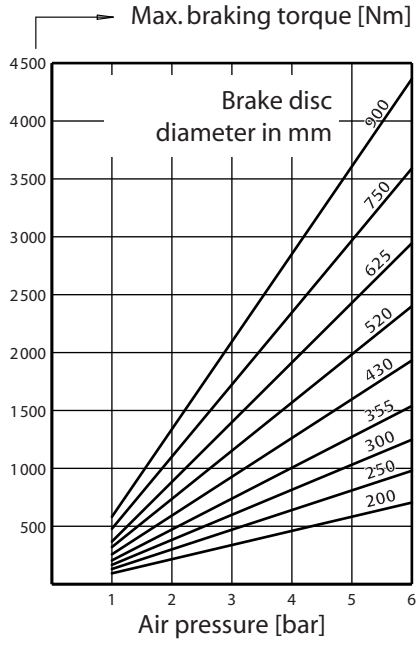
Air consumption:
max. 490 cm^3 per actuation

Weight: 12.3 kg

Thickness of brake disc: 12.5 mm



Dimensions in brackets resulting with maximum friction block wear.

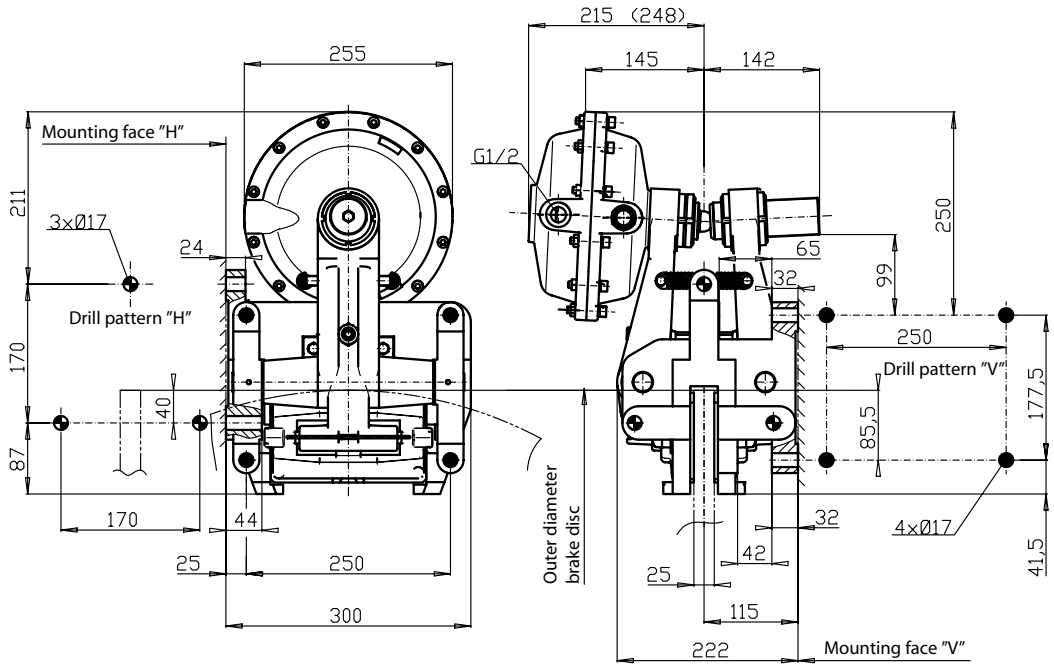


Brake Calliper DVH 40 P
pneumatically activated – spring released



Advantages

- Pressure is produced by compressed air, opening with spring force
- Mounting of the brake to the machine, can be made either parallel or at right-angles to the brake disc
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc



Brake chamber mounted opposite to mounting face„V".
Dimensions in brackets resulting with maximum friction block wear.



Frame Design

An outstanding feature of the Brake Calliper DVH 40 P is its unique frame design for universal mounting:

The brake can be mounted to the machine either parallel or at right-angles to the brake disc.

Technical Data

Article number: 4457.400.101

Compressed air connection: G 1/2

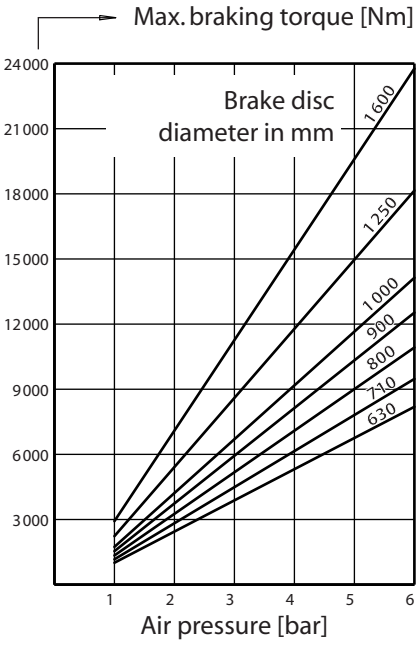
Operating pressure: max. 6 bar

Air consumption:
max. 2 000 cm^3 per actuation

Weight: 56 kg

Thickness of brake disc: 25 mm

Special type of Brake Calliper for higher braking torques available on request.



Brake Calliper DH 10 MS

manually activated – manually released

with threaded spindle



Advantages

- Applied pressure and opening is effected manually by operating a threaded spindle via a hand wheel
- A spring loaded threaded spindle compensates for wear of the friction block during the braking action
- Surface areas protected against corrosion
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

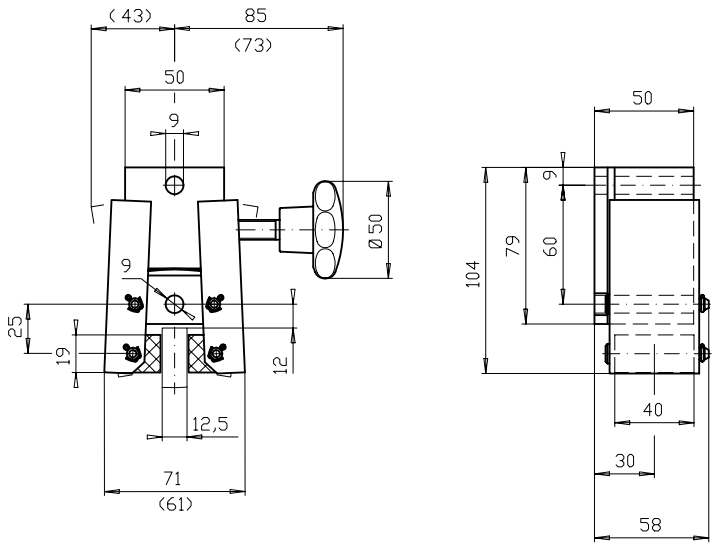
Technical Data

Article number: 4457.901.107

Hand wheel is mounted on the right, as shown in the drawing. Please indicate on your order if the hand wheel is to be mounted on the left.

Weight: 1.1 kg

Thickness of brake disc: 12.5 mm



Dimensions in brackets resulting with maximum friction block wear.

Brake disc diameter mm	Max. braking torque Nm
125	20
150	30
200	40
250	50
300	60
355	75

Please note:

The maximum braking torques are based on an operating torque of 0.8 Nm at the handwheel.

Brake Calliper DV 20 MS

manually activated – manually released

with threaded spindle



Advantages

- Applied pressure and opening is effected manually by operating a threaded spindle via a hand wheel
- A spring loaded threaded spindle compensates for wear of the friction blocks during the braking action
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc

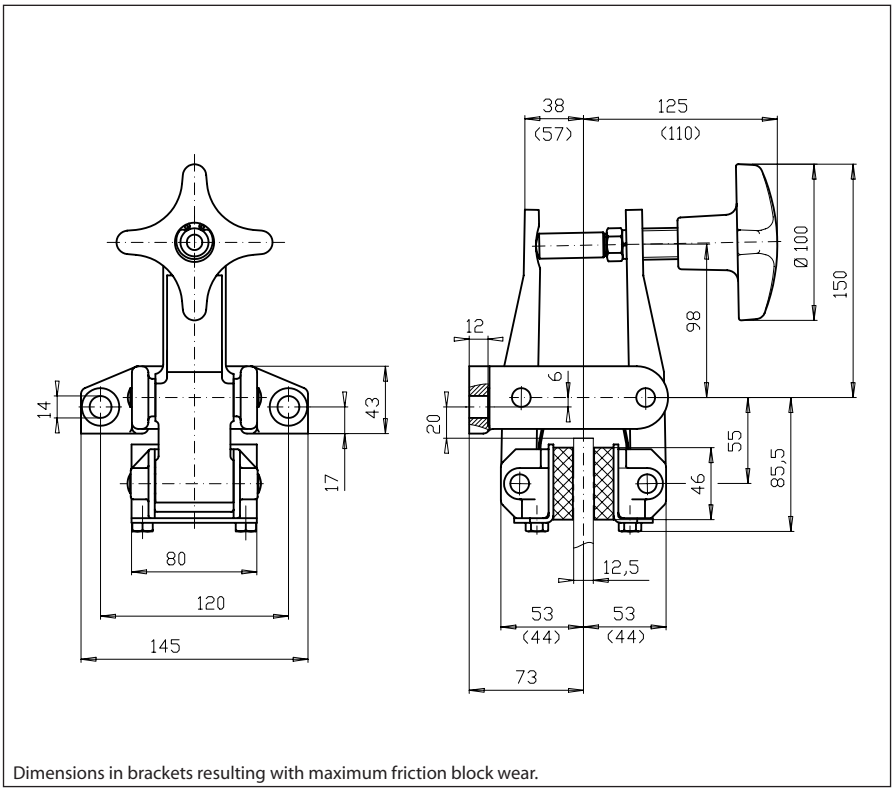
Technical Data

Article number: 4457.102.201

Hand wheel is mounted on the right, as shown in the drawing. Please indicate on your order if the hand wheel is to be mounted on the left.

Weight: 4.8 kg

Thickness of brake disc: 12.5 mm



Dimensions in brackets resulting with maximum friction block wear.

Brake disc diameter mm	Max. braking torque Nm
200	140
250	195
300	250
355	310
430	390
520	485

Please note:

The maximum braking torques are based on an operating torque of 7.7 Nm at the handwheel.

Brake Calliper DV 20 MK

manually activated - manually released

with pull cable



Advantages

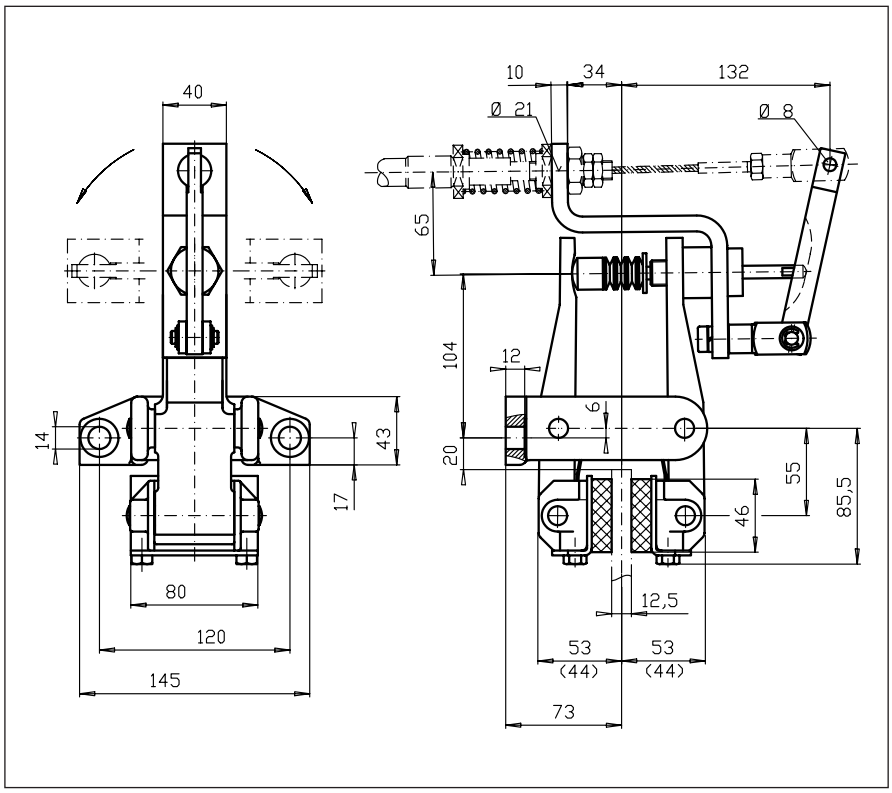
- Applied pressure and opening is effected by operating a pull cable
- A spring loaded pressure pin compensates for wear of the friction blocks during the braking action
- Friction blocks free from asbestos
- Swivel mounted friction blocks ensure full face contact on the brake disc.
- Ease of operation, with highly flexible cable available at the required length and with a choice of various operating levers

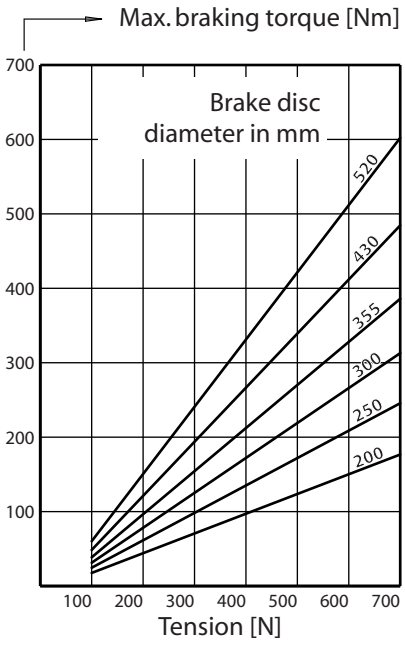
Technical Data

Article number: 4457.103.201

Weight: 5.1 kg

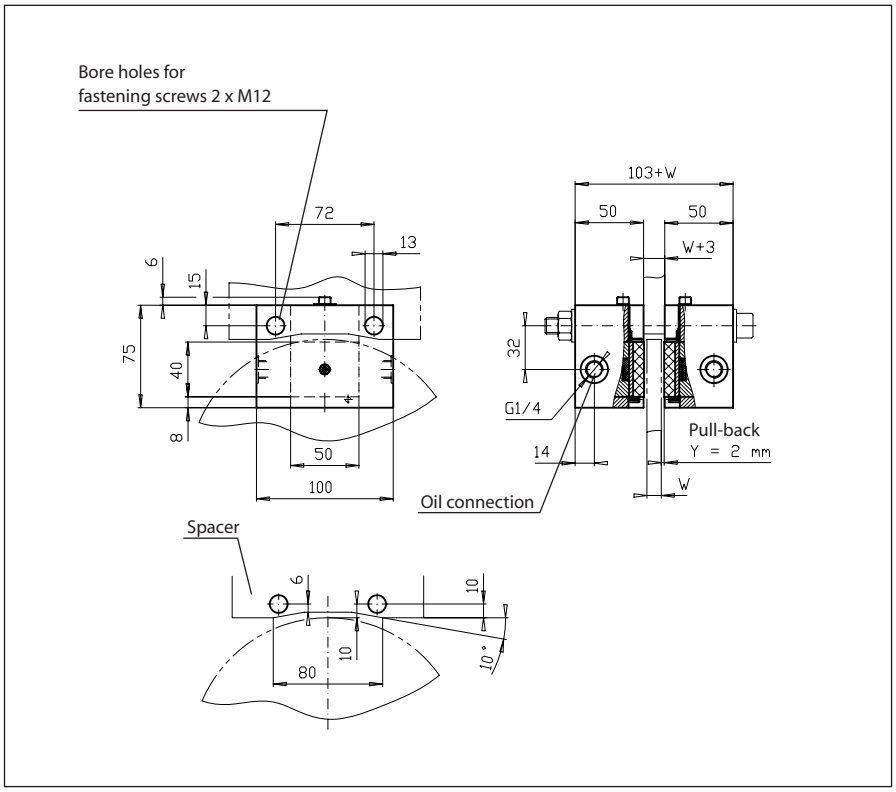
Thickness of brake disc: 12.5 mm





Brake Saddle HPW 40 R
hydraulically activated – spring released





Advantages

- Applied pressure is produced by oil pressure, opening with spring force
- Automatic adjustment of friction block wear ensures constant braking force
- Automatic friction block pull-back
- Friction blocks free from asbestos

Technical Data

Article number: 0458.300.307

Pressure oil connection: G 1/4

Pressure medium: Mineral oil

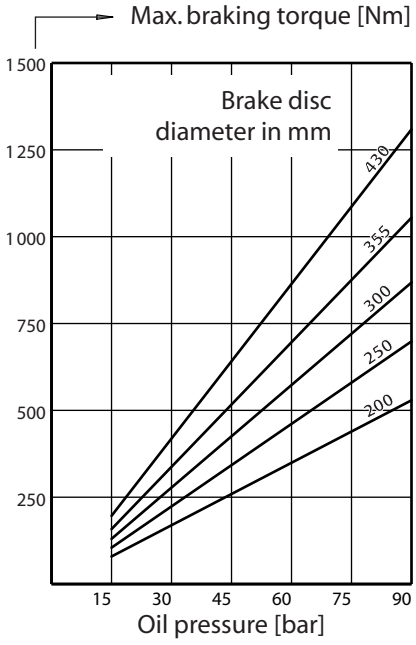
Operating pressure:
min. 15 bar, max. 90 bar

Oil requirement:
max. 5 cm^3 per stroke

Weight: 5.5 kg

Fastening of brake saddle requires grade 10.9 or grade 12.9 screws. Tightening torques M_S should be in accordance with VDI guideline 2230.

Brake discs of varying thickness W may be used, as the spacer (W + 3) is adaptable.



Brake Saddle HPW 63 R
hydraulically activated – spring released



Advantages

- Applied pressure is produced by oil pressure, opening with spring force
- Automatic adjustment of friction block wear ensures constant braking force
- Automatic friction block pull-back
- Friction blocks free from asbestos

Technical Data

Article number: 0458.400.307

Pressure oil connection: G 1/4

Pressure medium: Mineral oil

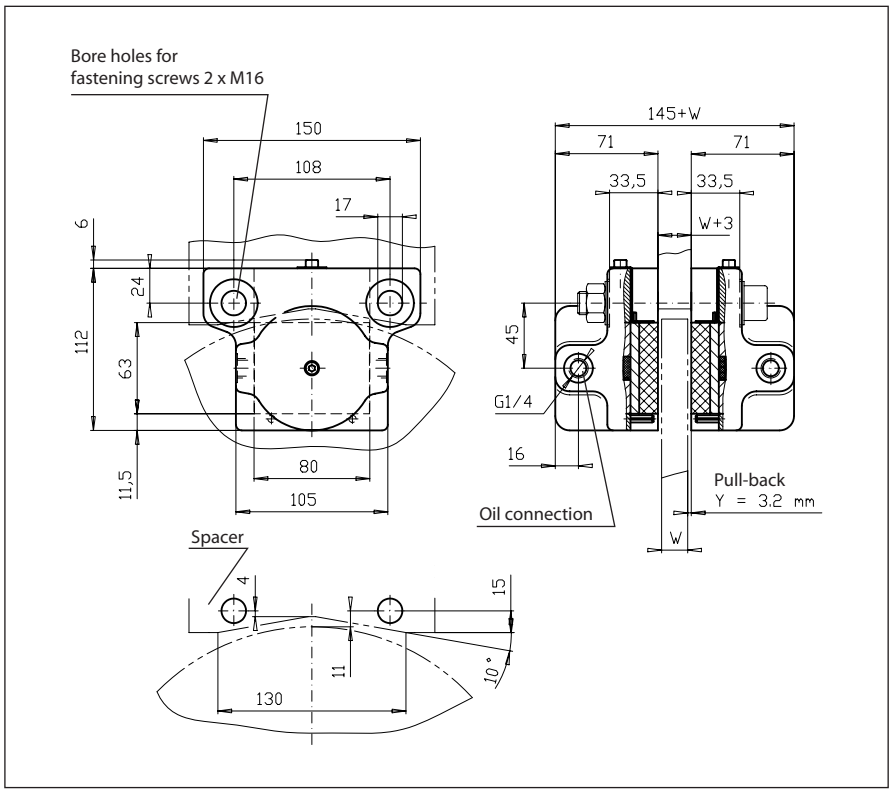
Operating pressure:
min. 15 bar, max. 90 bar

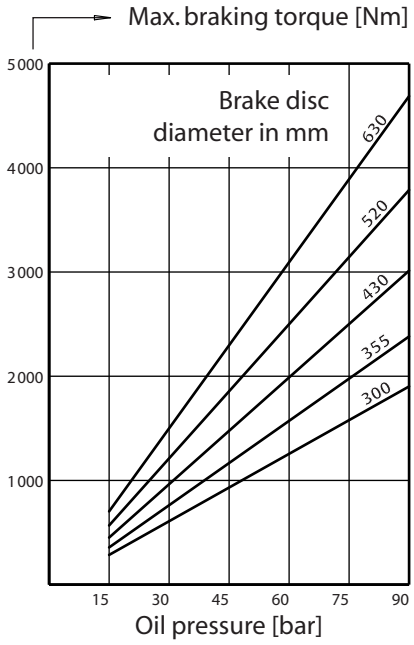
Oil requirement:
max. 20 cm^3 per stroke

Weight: 8 kg

Fastening of brake saddle requires grade 10.9 or grade 12.9 screws. Tightening torques M_S should be in accordance with VDI guideline 2230.

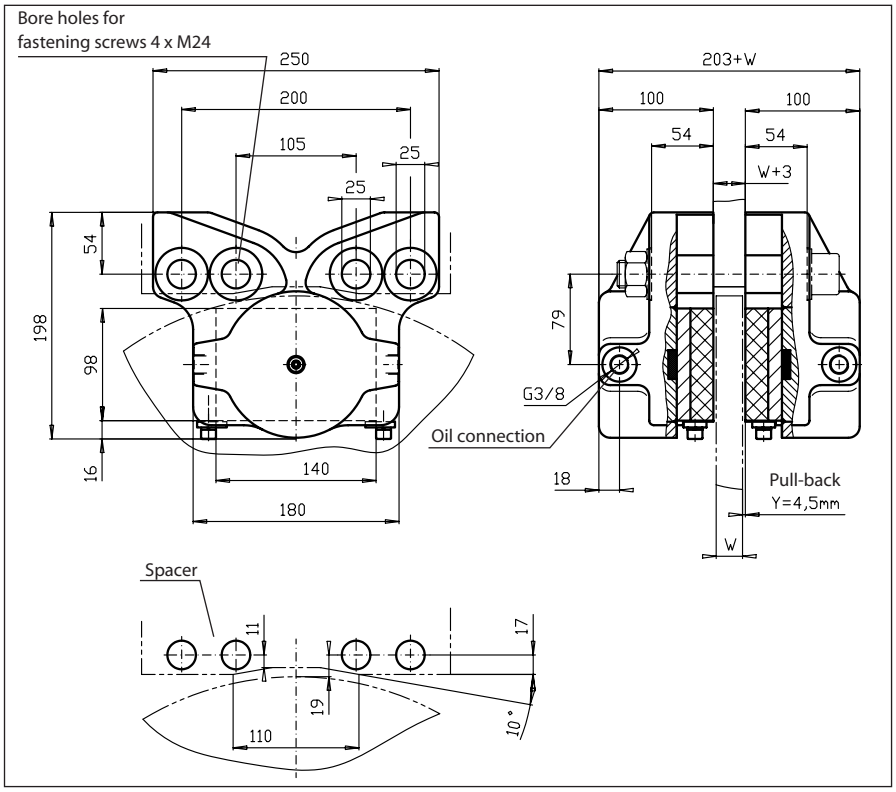
Brake discs of varying thickness W may be used, as the spacer (W + 3) is adaptable.





Brake Saddle HPW 101 R
hydraulically activated – spring released





Advantages

- Applied pressure is produced by oil pressure, opening with spring force
- Automatic adjustment of friction block wear ensures constant braking force
- Automatic friction block pull-back
- Friction blocks free from asbestos

Technical Data

Article number: 0458.600.310

Pressure oil connection: G 3/8

Pressure medium: Mineral oil

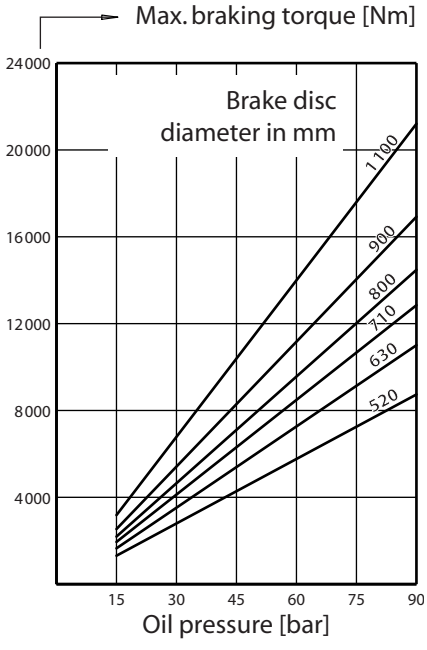
Operating pressure:
min. 15 bar, max. 90 bar

Oil requirement:
max. 71 cm^3 per stroke

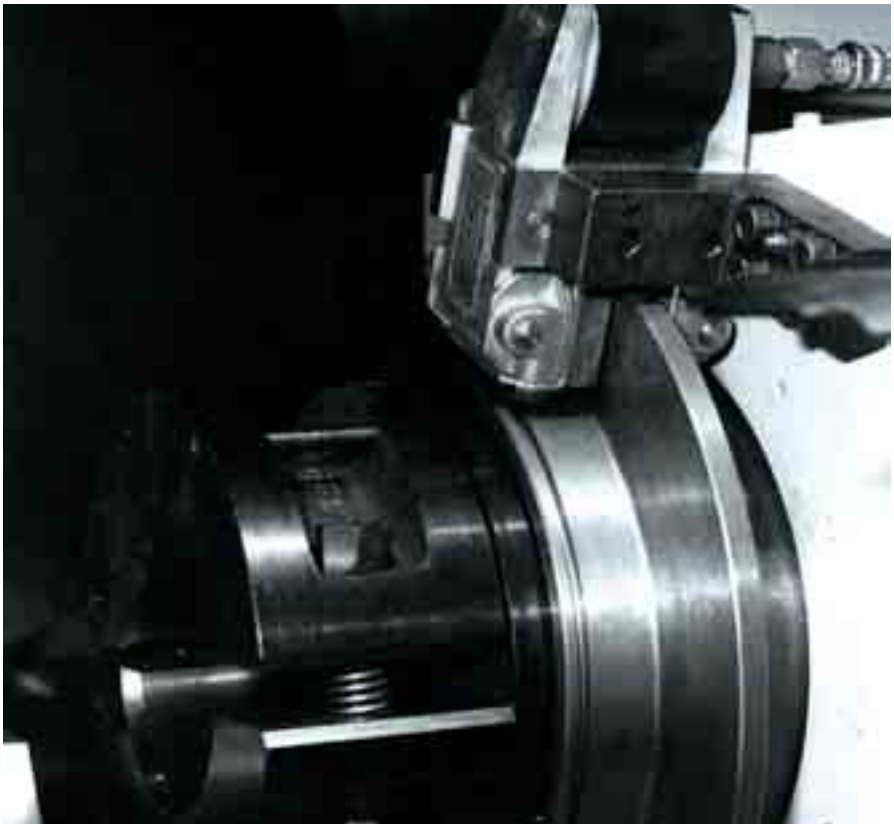
Weight: 30 kg

Fastening of brake saddle requires grade 10.9 or grade 12.9 screws. Tightening torques M_S should be in accordance with VDI guideline 2230.

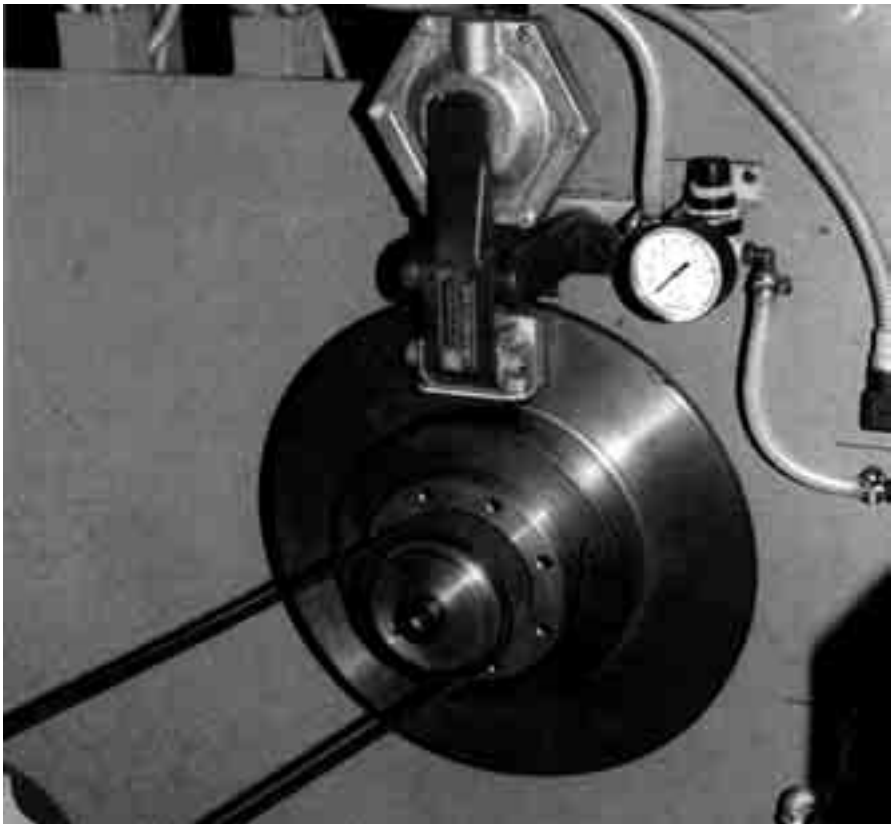
Brake discs of varying thickness W may be used, as the spacer (W + 3) is adaptable.



Application Examples

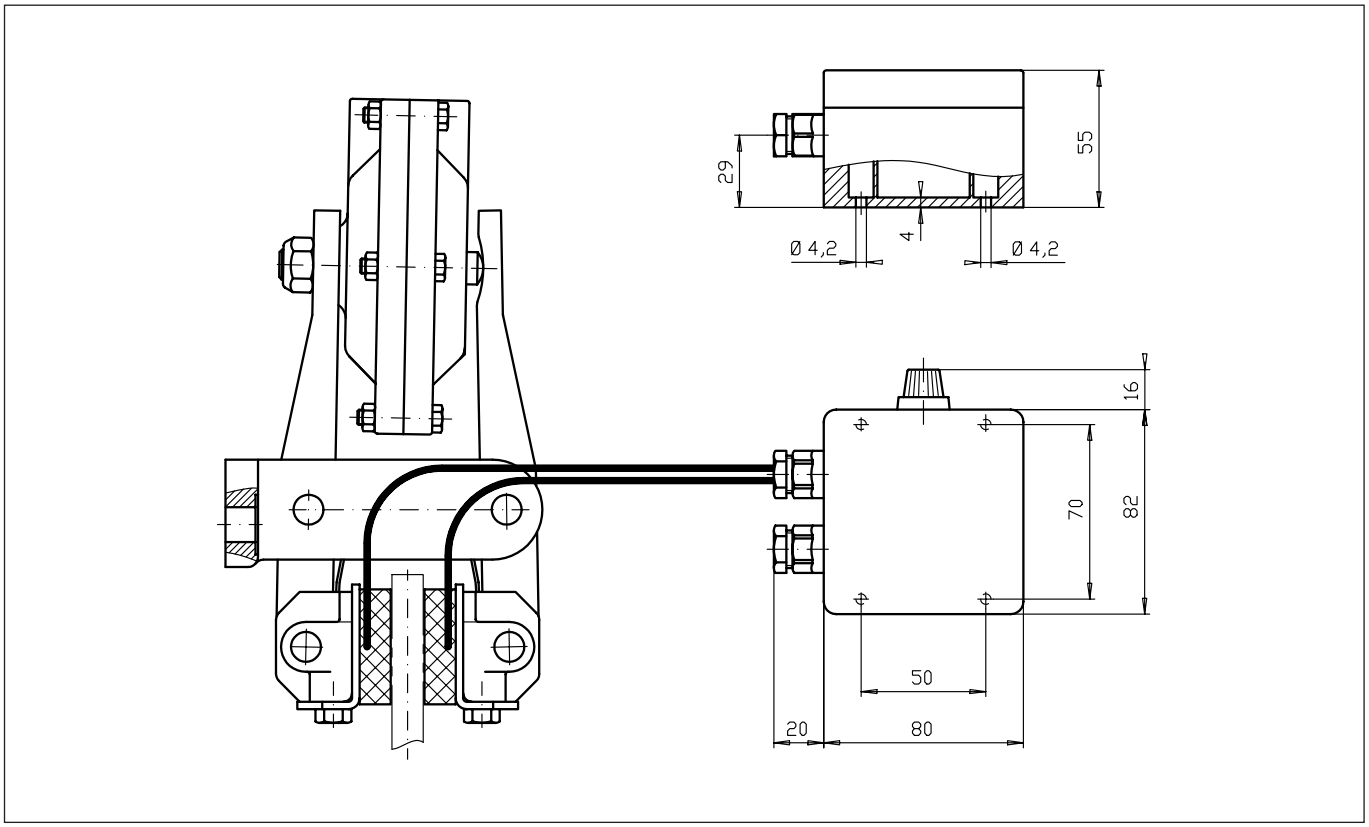


Pneumatically activated Brake Calliper DH 15 P in the drive of a four-colour printing press. The Brake Calliper arrangement between the gear and form cylinder coupling, stops the printing machine immediately if a paper tear occurs.



Pneumatically activated Brake Calliper DV 20 P in the drive of a wire drawing machine. The drawing process requires a constant tension. When the machine is stationary the Brake Calliper maintains the tension to prevent damage to the wire matrixes or material breakage when the process re-starts. If the material breaks the machine is stopped immediately by the Brake Calliper.

Friction Block Wear Control



Function

All the brakes can be supplied on request with an electrical wear indicator which signals the limit of the friction block wear. The control lamp in the wear monitor indicates when the friction blocks need to be replaced. In addition, the output relay can trigger off a signal in the central control station.

Friction Blocks with Signal Cable

Friction blocks with signal cable are used to monitor wear. Cable length 25 cm with plug connection.

Wear Indicator

Article number: 3511.000.001

Housing: Makrolon

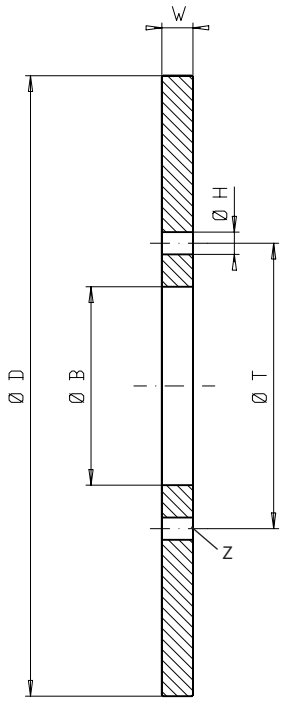
Insulation: IP 65

Colour: Grey RAL 7035

Temperature range: -50° C to 60° C

Output relay:
Reverser (changer),
max. 6 A, max. 220 V

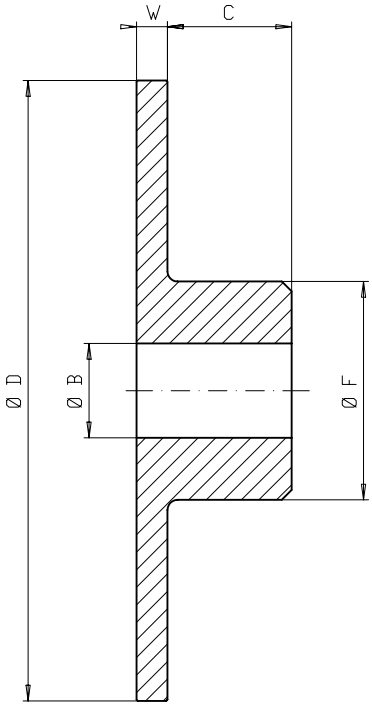
Brake Discs



Brake Disc Form F

Size	Rough-bored type Art.no.	D mm	W mm	B Rough-bored mm	Type with centre bore and fixing holes Art.no.	B^{H7} mm	T mm	H mm	$Z^{1)}$	Permissible Speed min^{-1}	Inertia Moment J kgm^2
F 125/12.5	2471.125.150	125	12.5	-	2471.125.152	40	56	9	4	14 500	0.0022
F 150/12.5	2471.150.150	150	12.5	-	2471.150.152	50	66	9	4	12 100	0.0045
F 200/12.5	2471.200.150	200	12.5	-	2471.200.151	63	83	11	8	9 100	0.0141
F 250/12.5	2471.250.150	250	12.5	-	2471.250.159	80	100	11	8	7 300	0.0345
F 300/12.5	2471.300.150	300	12.5	-	2471.300.155	100	122	14	8	6 000	0.072
F 355/12.5	2471.355.150	355	12.5	-	2471.355.152	110	132	14	10	5 100	0.140
F 430/12.5	2471.430.150	430	12.5	50	2471.430.157	125	147	14	12	4 200	0.302
F 520/12.5	2471.520.150	520	12.5	50	2471.520.158	160	182	14	16	3 500	0.646
F 630/25	2471.630.150	630	25	75						2 900	2.78
F 710/25	2471.710.150	710	25	95						2 600	4.49
F 800/25	2471.800.150	800	25	95						2 300	7.24
F 900/25	2471.900.150	900	25	120						2 000	11.59
F 1000/25	2471.990.150	1 000	25	120						1 800	17.7
F 1250/25	2471.990.151	1 250	25	150						1 450	43.1
F 1600/25	2471.990.152	1 600	25	180						1 150	115.8

[1)] Z = number of fixing holes H on pitch circle



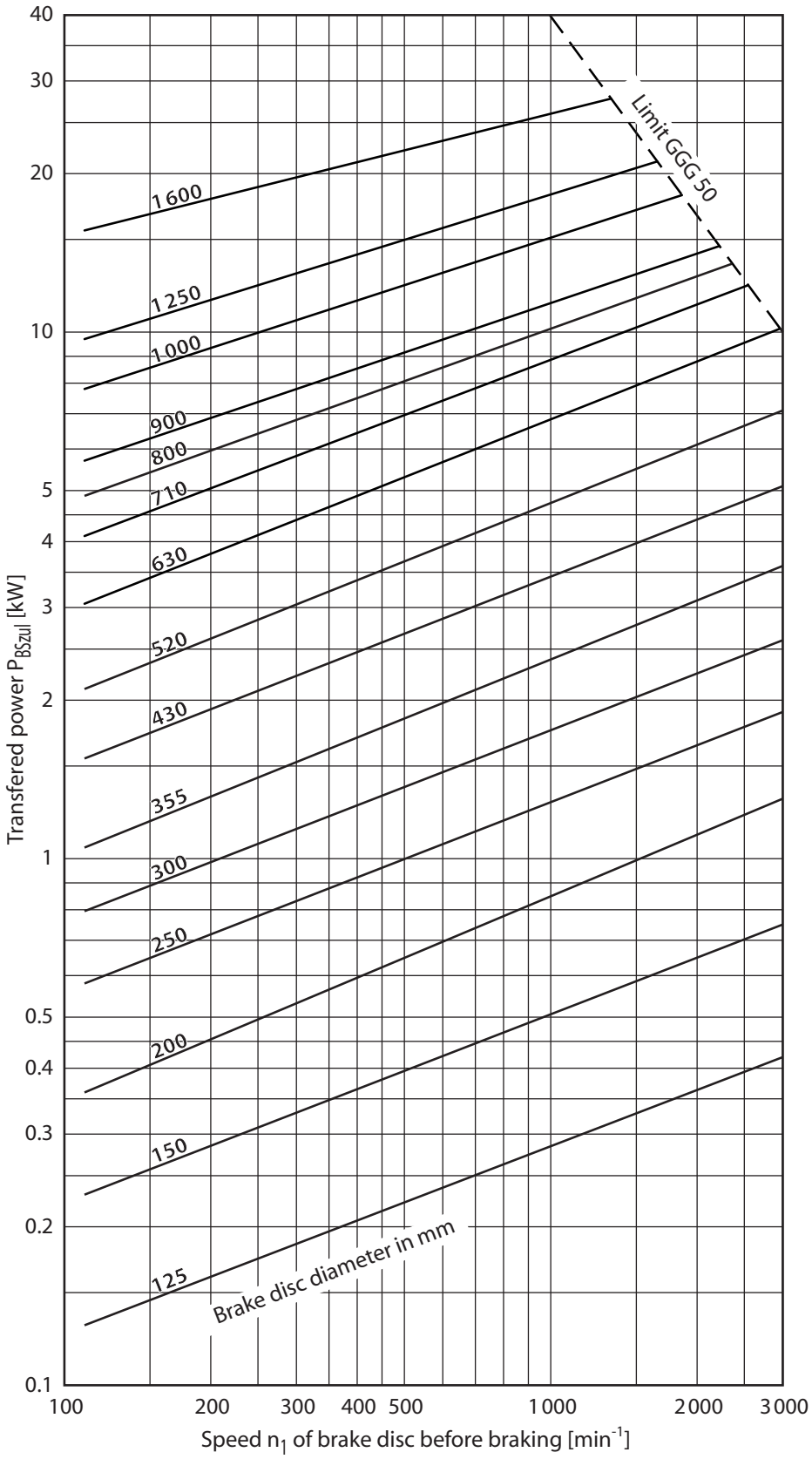
Brake Disc Form B

Size	Rough-bored Type Art.no.	D mm	W mm	B Rough-bored mm	F mm	C mm	Permissible Speed min^{-1}	Inertia Moment J kgm^2
B 125/12.5	2471.125.250	125	12.5	-	50	25	14 500	0.0023
B 150/12.5	2471.150.250	150	12.5	-	60	30	12 100	0.0047
B 200/12.5	2471.200.250	200	12.5	-	65	40	9 100	0.0146
B 250/12.5	2471.250.250	250	12.5	-	100	50	7 300	0.0380
B 300/12.5	2471.300.250	300	12.5	-	120	60	6 000	0.080
B 355/12.5	2471.355.250	355	12.5	-	145	70	5 100	0.162
B 430/12.5	2471.430.250	430	12.5	50	170	85	4 200	0.352
B 520/12.5	2471.520.250	520	12.5	50	210	105	3 500	0.790
B 630/25	2471.630.250	630	25	75	250	125	2 900	3.13
B 710/25	2471.710.250	710	25	95	280	140	2 600	5.09
B 800/25	2471.800.250	800	25	95	320	160	2 300	8.42
B 900/25	2471.900.250	900	25	120	360	180	2 000	13.70
B 1000/25	2471.990.250	1.000	25	120	400	200	1 800	21.3
B 1250/25	2471.990.251	1.250	25	150	500	250	1 450	54.1
B 1600/25	2471.990.252	1.600	25	180	640	320	1 150	153.5

The brake discs are made from GGG-50 (DIN 1693). For Brake Callipers DV 30 in special design, brake discs with diameters ranging from D = 200 mm up to 520 mm are also available with a disc thickness of W=25 mm.

Please refer to the technical data on pages 36 and 37 when selecting the size of brake disc.

Please specify the article number when placing your order.



The transferred power is based on a maximum disc temperature of 300° C applicable to disc thicknesses of up to 25 mm.

Design of Industrial Disc Brakes

Selection

When selecting RINGSPANN Disc Brakes, two criteria need to be considered:

- Is the selected combination of brake calliper/brake disc capable of braking the torque requirement of the application?
- Can the brake disc transfer the frictional heat without damage to adjacent parts?

Calculation of the Required Torques

Braking of Rotating Masses

The necessary braking torque results from the mass inertia moment relative to the brake shaft Jred. When braking to a halt n_2=0.

$$M_B = M_R = \frac{J_{red}}{t_B} \cdot \frac{n_1 - n_2}{9.55}$$

Braking of Rotating Masses with Additional Motor Braking

If an additional braking torque M_{Bf} is available, e.g. from a braked electric motor, then the formula for the necessary braking torque is:

$$M_B = M_R - M_{Bf} = \frac{J_{red}}{t_B} \cdot \frac{n_1 - n_2}{9.55} - M_{Bf}$$

Braking of Chassis

The required braking torque for a deceleration is made up of the load torque M_L, originating from the net weight G of the installation, the braking torque for the deceleration of the rotating masses M_R and the braking torque for decelerating the linear-moving masses M_V (referred to the braking shaft).

$$M_B = M_L + M_R + M_V$$

$$M_{Lmax} = (G \sin \gamma + F_W - F_F) \cdot \frac{D_R \cdot \eta}{2 \cdot i}$$

$$M_R = \frac{J_{red}}{t_B} \cdot \frac{n_1 - n_2}{9.55}$$

$$M_V = \frac{m}{t_B} \cdot \frac{n_1 - n_2}{38.2} \cdot \left(\frac{D_R}{i}\right)^2 \cdot \eta$$

After completing this calculation, check whether the braking torque M_B can be transmitted via the chassis wheel friction.

$$M_B < \mu_R \cdot m \cdot g \cdot \frac{D_R}{2}$$

Controlled Braking for Winding Processes

The required braking torque varies between the value M_{Bi} with minimum winding diameter di and M_{Ba} with maximum winding diameter d_a.

$$M_{Bi} = \frac{S \cdot d_i}{2}$$

$$M_{Ba} = \frac{S \cdot d_a}{2}$$

Braking Torques and Parking Torques

The braking torques given in this catalogue are dynamic braking torques. They only apply:

- When the brake linings are run in
- And original RINGSPANN brake discs, or brakes discs made from the recommended material are used.

If the disc brakes are used as parking brakes then the given brake torques are only applicable as parking torques if the above conditions are met. If running-in is not possible or if the running-in process is omitted, the braking torques given will not be achieved; torque reductions of up to 50% are possible. If static parking torques in accordance with the catalogue torques are required but without running-in, then special friction linings are needed. For such applications, please refer the matter to us for advice.

Verification of Heat Absorption

Permissible Braking Action with Single Braking Operation

Unusual braking processes should be checked to ensure that the brake disc is not heated to above 300° C by the energy absorbed. The braking time in this case should not exceed 10 seconds.

The maximum energy of braking to be absorbed for brake discs made from GGG-50 is given in the table below. We recommend that this additional calculation be carried out in the case of indexing operations. The absorbed energy for the deceleration of rotating masses in this case is:

$$W_B = \frac{J_{red} (n_1 - n_2)^2}{182.5}$$

Ensure that:

$$W_{BSzul} \geq W_B$$

W_{BSzul} is shown in the following table:

D mm	W_{BSzul} Nm
125	185 000
150	270 000
200	460 000
250	760 000
300	1 300 000
355	1 900 000
430	3 000 000
520	5 000 000
630	11 000 000
710	15 000 000
800	20 000 000
900	27 000 000
1 000	35 000 000
1 250	60 000 000
1 600	110 000 000

Verification of Heat Dissipation

The transmissible brake power of the disc according to the diagram on page 35 applies to the types of braking operation described below:

$$P_{BSzul} \geq P_B$$

Braking with low frequency z ≤ 40 per hour

If "z" actuations occur within one hour, then the brake power capacity required is as follows:

$$P_B = \frac{M_B\,(n_1 - n_2)}{6.88 \cdot 10^7} \cdot z \cdot t_B$$

Braking with high frequency z > 40 per hour

For such cases we would ask you to enclose with your enquiry exact details of the time slope of speed and braking torque, as well as the completed questionnaire on page 39. We will check the design of the brake disc in respect of the heat emission on your behalf.

Continuous Slipping

Winding operations may require a variety of processes regarding tension of the wound material and winding speed. We therefore recommend an initial rough calculation of M_{Ba} and M_{Bi}.

Please send us the completed questionnaire on page 39 for a more accurate evaluation.

$$P_{Bi} = \frac{M_{Bi} \cdot n_i}{9550} \quad \text{or} \quad P_{Bi} = \frac{S \cdot d_i \cdot n_i}{19100}$$

$$P_{Ba} = \frac{M_{Ba} \cdot n_a}{9550} \quad \text{or} \quad P_{Ba} = \frac{S \cdot d_a \cdot n_a}{19100}$$

Symbols

d_i	[m]	Smallest diameter of roller
d_a	[m]	Largest diameter of roller
D	[mm]	Diameter of brake disc
D_R	[m]	Chassis wheel diameter
F_F	[N]	Tractional resistance on the chassis wheels
F_W	[N]	Wind reaction force on chassis
G	[N]	Total weight of Chassis
J_{red}	[kg m²]	Reduced inertia moment
i	-	Gear ratio between wheel and brake shaft
m	[kg]	Mass of complete chassis
M_B	[Nm]	Required braking torque
M_{Bf}	[Nm]	Braking torque of the motor
M_{Ba}	[Nm]	Braking torque for roller diameter d_a
M_{Bi}	[Nm]	Braking torque for roller diameter d_i
M_L	[Nm]	Load torque
M_R	[Nm]	Deceleration torque of rotating masses
M_V	[Nm]	Deceleration torque of linear moving masses
n_1	[min⁻¹]	Speed before braking
n_2	[min⁻¹]	Speed after braking
n_i	[min⁻¹]	Speed at d_i
n_a	[min⁻¹]	Speed at d_a
P_B	[kW]	Brake power generated by application, avarage with one braking cycle
P_{Bi}	[kW]	Brake power with winding diameter d_i
P_{Ba}	[kW]	Brake power with wind diameter d_a
P_{BSzul}	[kW]	Brake power capacity of brake disc
S	[N]	Tension on the winding material
t_B	[s]	Braking time
W_B	[Nm]	Braking energy generated by application
W_{BSzul}	[Nm]	Braking energy capacity of the brake disc
z	[h⁻¹]	Nuber of braking cycles per hour
γ	[°]	Angle of inclination
η	-	Gear efficiency – if known, calculation with η=0.85 is advised
μ_R		Roller friction value on the chassis wheel

Comparison Table of current Disc Brakes

Twiflex	Siegerland	Coremo	Svendborg	RINGSPANN
				Spring - activated Brake Callipers
-	-	-	-	Brake Calliper DH 10 FPM
Type 100 - No. 11848	B2N	B2-N	-	Brake Calliper DV 20 FPM
Type 200 - No. 11850	F3N	F3-N	-	Brake Calliper DV 30 FPM
Type 200 - No. 11204	-	-	-	Brake Calliper DV 30 FPA
Type MR - No. 11846	A3N	A3-N	KFSB	Brake Calliper DH 30 FPM
Type MRS - No. 11041	-	-	-	Brake Calliper DH 30 FPA
Type GMRSP - No. 10382	E4N	E4-N	BSFA 120	Brake Calliper DVH 40 FPM
Type 100 - No. 10391	-	-	-	Brake Calliper DV 20 FHM
Type 200 - No. 11149	F3N-ID	F3N-ID	-	Brake Calliper DV 30 FHA
Type MRY - No. 10070	A3N-ID	A3N-ID	KCDB	Brake Calliper DH 30 FHA
-	-	-	-	Brake Calliper DV 20 FKM
				Pneumatically activated Brake Callipers
-	-	-	-	Brake Calliper DH 5 P
Type MU - 101 - No. 12934	MP	MP	-	Brake Calliper DH 10 P
-	-	-	-	Brake Calliper DH 15 P
Type 100 - No. 10784	B2	B2	KSG	Brake Calliper DV 20 P
Type 200 - No. 11154	F3	F3	-	Brake Calliper DV 30 P
Type MRB - No. 10046	A3	A3	KR2B	Brake Calliper DH 30 P
Type GMRP - No. 10332	E4	E4	BSAA	Brake Calliper DVH 40 P
				Manually activated Brake Callipers
-	-	-	-	Brake Calliper DH 10 MS
Type 100 - No. 10393	B-M	B-M	KSH	Brake Calliper DV 20 MS
Type 100 - No. 10394	-	-	-	Brake Calliper DV 20 MK
				Hydraulically activated Brake Saddles
-	-	-	-	Brake Saddle HPW 40 R
-	-	-	-	Brake Saddle HPW 63 R
-	-	-	-	Brake Saddle HPW 101 R

The comparison of the above disc brakes applies to their main connecting dimensions.

Questionnaire for the selection of RINGSPANN Disc Brakes

please photocopy

Company: ..... Departament/Contact: .....

Address: ..... Name: .....

..... Enquiry no.: .....

Telephone: ..... Date: .....

Telefax: ..... e-mail: .....

1. Application ❑ Stopping brake ❑ Parking brake ❑ Control brake

2. Function

Actuation:	Release:	Existing pressure:
❑ Spring	❑ Pneumatic ❑ Hydraulic ❑ Manual with pull cable	_____ bar _____ bar
❑ Pneumatic	Spring	_____ bar
❑ Hydraulic	Spring	_____ bar
❑ Manual with threaded spindle ❑ Manual with pull cable	Manual with threaded spindle Manual with pull cable	

3. Friction block wear control required? ❑ Yes ❑ No

4. The following safety rules must be observed

.....

.....

.....

5. Type of machine

.....

.....

6. Part to be braked

.....

.....

7. Technical data

Stopping Brake:

Req.'d braking torque		_____ Nm
Req.'d braking time		_____ s
Reduced mass inertia moment to be braked		_____ kgm^2
Weight of linear masses to be braked		_____ kg
Transmission up to brake shaft	i	_____
Driving speed	v	_____ m/s
Chassis wheel diameter	D_R	_____ mm
Angle of inclination	γ	_____ °
Speed before braking	n_1	_____ min^{-1}
Speed after braking	n_2	_____ min^{-1}
Idling speed	n	_____ min^{-1}
Braking cycles per hour	z	_____ h^{-1}

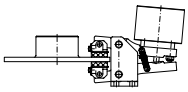
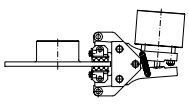
Parking Brake:

Parking torque _____ Nm

Please note the information given under Brake Torques and Parking Torques on page 36.

Control Brake:

Tension on winding material	S	_____ N
Speed of material	v	_____ m/s
Max. winding diameter	d_a	_____ m
Min. winding diameter	d_i	_____ m
Length of feed reels	L	_____ m
Material to be wound		_____
		_____
		_____
Duration of operation	t	_____ s

8. Mounting of brake to machine ❑ Parallel to brake disc  ❑ Right-angled to brake disc 

9. Brake disc

ø - Req.'d disc ø _____ mm

ø - Max. permiss. disc ø _____ mm

❑ Form F, unbored

❑ Form F, with centre bore and fixing holes

Bore ø B^{H7} _____ mm

❑ Form B, unbored

❑ Form B, finished bored and keywayed

10. Installation conditions Ambient temperature from ____ °C to ____ °C Other information (e. g. special ambient conditions) _____

11. Selected Brake and brake disc Selected Brake: _____ Selected brake disc: _____

12. Estimated requirement _____ units (one off application) _____ units/month _____ units/year

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RINGSPANN®
Power Transmission

Freewheels

Backstops
Automatic protection against reverse running of conveyor belts, elevators, pumps and fans.

Catalogue 88

Overrunning Freewheels
Automatic engaging and disengaging of drives.

Catalogue 80

Housing Freewheels
Automatic engaging and disengaging for multi-motor drives for installations with continuous operation.

Catalogue 80.1

Indexing Freewheels
For gradual feed of materials.

Catalogue 80

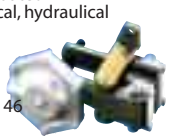
Freewheel Elements
Cage Freewheels, Sprag Sets and Freewheel Chains.

Catalogue 89

Brakes

Industrial Disc Brakes
Manual actuated – manual release.

Catalogue 46

Industrial Disc Brakes
Spring actuated – pneumatical, hydraulical or manual release.

Catalogue 46

Industrial Disc Brakes
Spring actuated – electromagnetical release.

Catalogue 46

Industrial Disc Brakes
Pneumatical actuated – spring release.

Catalogue 46

Industrial Disc Brakes
Hydraulical actuated – spring release.

Catalogue 46

Torque and Force Limiters

Torque Limiters with Screw Face
Reliable overload protection for tough operating conditions.

Catalogue 45

Torque Limiters with Rollers
With double or single Roller. Through ratcheting or disengaging, also for 360° synchronous running.

Catalogue 45

Torque Limiters with Spherical Rollers
Reliable overload protection with maximum response accuracy. Also backlash free.

Catalogue 45

Torque Limiters with Friction Linings
RIMOSTAT Torque Limiter for constant torque. Belleville Spring Torque Limiter for simple release.

Catalogue 45

Force Limiters
Reliable axial overload protection in piston rods.

Catalogue 49

Couplings and Clamping Clutches

Flexible Couplings
Large, allowed radial and angular misalignements. Minimum resiliency.

Catalogue 44

Flange-Couplings
Rigid, easily removable shaft coupling with no clearance cone clamping elements.

E04.020

HELICAL-Flexures Shaft Couplings
Design to meet requirements for specific applications. Connecting components can be integrated to save space.

Catalogue 43

Clamping Clutches
For the automatic coupling of rolls. Fast, safe and free from slipping connection.

Catalogue 45

Fail-Safe Clamping Units
For secure and precise positioning of piston rods.

Catalogue 32

Shaft-Hub-Connections

Cone Clamping Elements
For shaft-hub connections. High torques with small dimensions.

Catalogue 31

Two-part Shrink Discs
External clamping connection. Advantages: Simple, secure mounting even without torque wrench.

Catalogue 31.1

Three-part Shrink Discs
External clamping connection for the fastening of hollow shafts on solid shafts

Catalogue 31

Star and Clamping Discs
Ideal for shaft-hub-connection for frequent release.

Catalogue 30

Star Spring Washers
Axial spring element for preloading of ball bearings.

Catalogue 20

RINGSPANN®
Workholding Technology

Precision Clamping Fixtures

Standard Parts for Clamping Fixtures
The RINGSPANN-System for the manufacture of your own precision clamping fixtures.

Catalogue 14

Standard Clamping Fixtures
Standard programme in high precision, ready manufactured chucks and mandrels.


Special Clamping Fixtures
Custom made solutions for specific clamping problems.


Collet Mandrels
Universal, cost effective standard series. Fast collet change to other clamping diameters.

Catalogue 15

Hydraulic Expanding Clamping Tools
Mandrels and chucks with high concentricity. Clamping several workpieces in one process possible.

Catalogue 16

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