

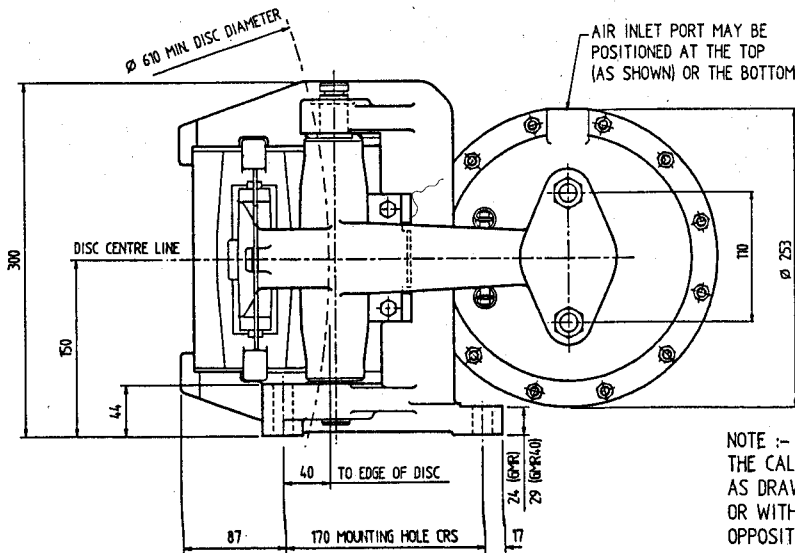
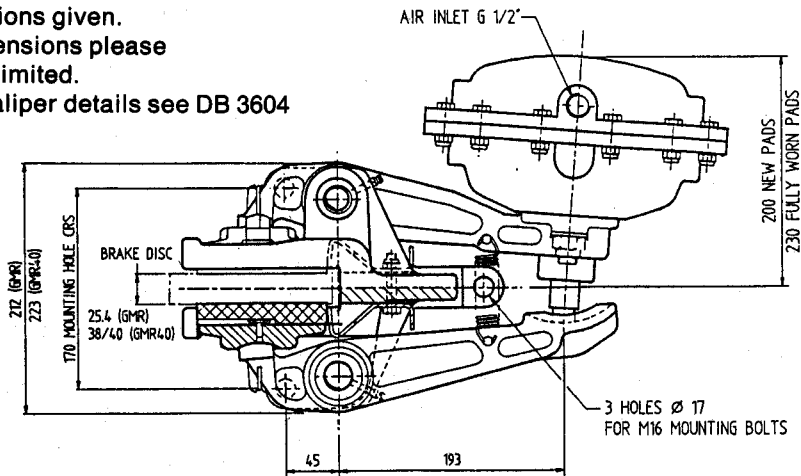
GMR—P and GMR40—P DISC BRAKE CALIPER AIR APPLIED—SPRING RELEASED

DB 3606

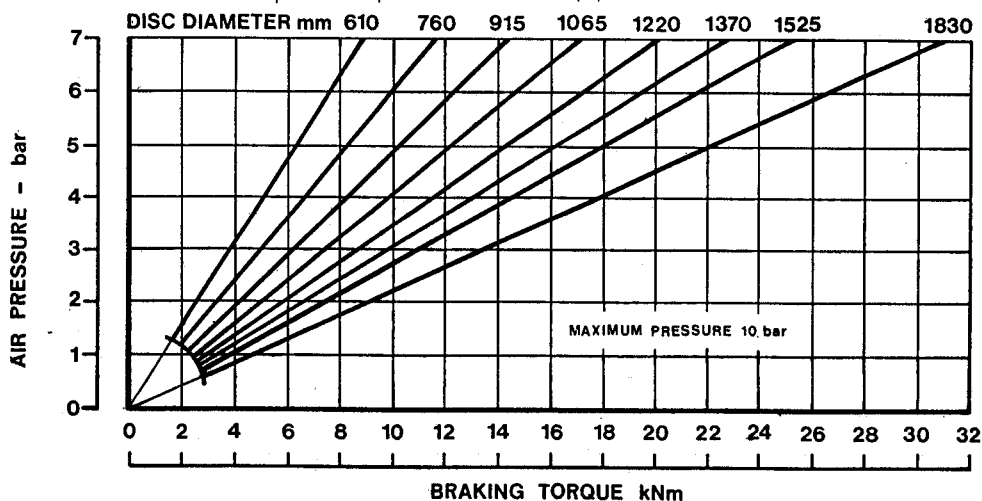
Issue 1

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Nominal dimensions given.
For specific dimensions please
contact Twiflex Limited.
For GMR Mk 2 caliper details see DB 3604



NOTE: THE CALIPER MAY BE ASSEMBLED AS DRAWN (RIGHT HAND ASSEMBLY) OR WITH ARMS AND THRUSTER OPPOSITELY HANDED.



Maximum Braking Force = 36kN

The ratings shown on the above graph are based on fully bedded and conditioned brake pads. For bedding-in and conditioning procedures see Publication M1060.

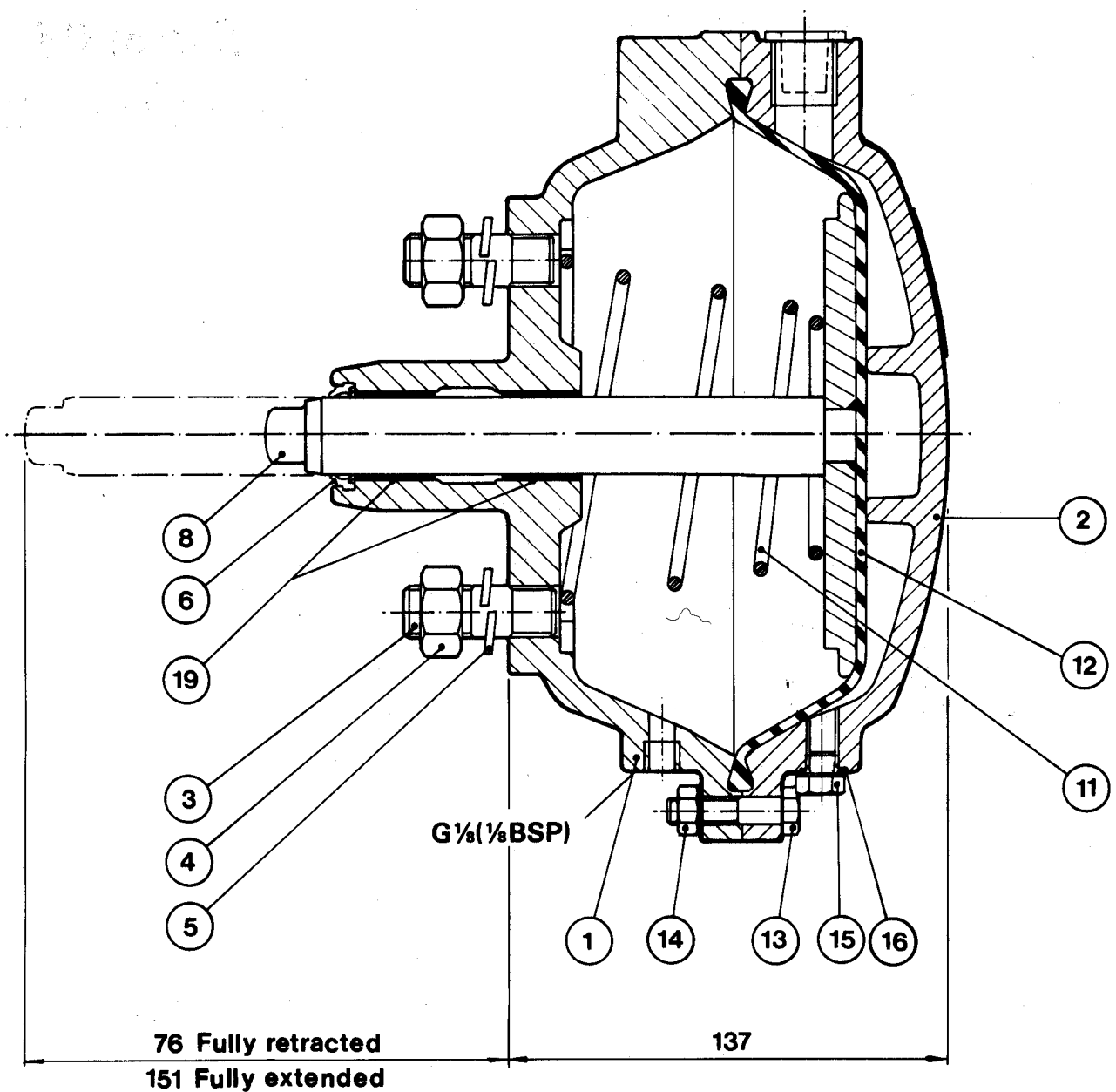
Braking Force is defined as the Tangential Force acting on the brake disc at the Effective Disc Radius.

Braking Torque (Nm) = Braking Force (N) x Effective Disc Radius (m)
where Effective Disc Radius = Actual Disc Radius - 0.06



Twiflex Limited

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Thruster Type—P
Part No. 7200773

MAXIMUM DISPLACEMENT VOLUME 1.8 l.
WEIGHT OF THRUSTER 6.8 kg.

Parts List

Item	Component	Part No.	Qty.
1	Front Cap		1
2	Rear Cap		1
3	Stud		2
4	M16 Nut		2
5	M16 Spring Washer		2
6	Wiper Seal	6000242	1
7			
8	Pushrod Assembly		1
9			
10			

Item	Component	Part No.	Qty.
11	Return Spring		1
12	Diaphragm	8400029	1
13	M8 x 35 Bolt		12
14	M8 Nut		12
15	G 1/8 Plug		1
16	Washer		1
17			
18			
19	Bush	1800372	2

Installation, Operation and Maintenance

1. Installation

- 1.1 The caliper must be mounted on a suitably rigid support, upon which braking forces of up to 36kN will be imposed.
- 1.2 The caliper should be positioned symmetrically with respect to the disc, as shown on the drawing.
- 1.3 Three fixing bolts are required, M16 grade 8.8. The bolts should be tightened to a torque of 150Nm.
- 1.4 If the caliper is to be mounted on an inclined surface, the caliper should be fitted with adjustable stop screw and bias spring, included in the incline mounting kit (Part Number 6700457, drawing number A11074).
- 1.5 Calipers are normally supplied assembled 'right-handed', as shown on the drawing, unless otherwise specified.
- 1.6 The thruster is normally supplied separately from the caliper.
The thruster should be fitted to the caliper with M16 nuts and washers supplied. The tightening torque for these nuts is 45Nm.
- 1.7 The air inlet connection on the thruster is tapped G $\frac{1}{2}$ ($\frac{1}{2}$ " BSP).

The air supply should be connected via a length of flexible piping to accommodate the movement during operation. A quick exhaust valve may be fitted if very rapid brake release is required.

- 1.8 Control of brake operation is effected by a 3 port, 2 position valve with open exhaust. Standard 'Twiflex' controllers, with electrical, pneumatic or hydraulic signalling are available if required.

2. Operation

- 2.1 The brake is applied by pneumatic pressure, and released by the tension springs on the caliper and the internal return spring in the thruster. The braking force is proportional to the applied air pressure. The normal maximum operating pressure is 7 bar, corresponding to a tangential braking force of 36kN (with standard pads).
- 2.2 No adjustments are required to be made to the caliper. Pad wear can be monitored by observing the gap between the lugs on the pad pressure plates and the adjacent machined surfaces on the caliper frame, whilst the brake is applied. Pads must be replaced before the gap is reduced to zero. (The maximum allowable wear on a pad is 10mm).

3. Maintenance

CALIPER

- 3.1 Ensure that the brake pads and disc remain free from oil and grease. Clean the disc as required. If the pads become contaminated they should be replaced. Carry out any periodic statutory testing that is required, or otherwise check for satisfactory performance.
- 3.2 Pad replacement is carried out from the rear of the caliper; DO NOT release the spring clips which attach the pressure plates to the caliper arms. With the brake off remove the caliper return springs and keep the plates. If an inclined mounting kit is fitted, remove this also. Withdraw the pads to the rear and lift out. (The hole in the end of the pad retaining plates is provided to assist in withdrawing the pads). Fit the new pads, ensuring that the slotted retaining plate is located around the keep disc on the pressure plate; the pads should slide freely into position. Re-fit the remaining parts. Where an inclined mounting kit is used, the stop screw should be adjusted to give equal clearance at each pad.
- 3.3 The surface of the caliper arm upon which the thruster pushrod bears should be kept well greased. The knuckle joints between the caliper arms and the pressure plates should be cleaned occasionally, and a small amount of grease applied.

Occasionally, or if caliper is not operating freely, inject a small amount of grease via grease nipples to lubricate the pivot pins, then rotate pins to distribute the grease. Any grease exuding past the 'O'-rings should be wiped off. The pins may be turned by gripping the knurled end at the top of the caliper.

After extended (one million operations or three years) use, the pivot pins should be withdrawn, cleaned, replaced and regreased, or replaced if badly worn.

In order not to damage the O-ring seals on the pins, use the following procedure. Remove the top circlip, push pin down until the lower circlip and 'O'-ring can be removed, then withdraw the pin upwards. To refit, reverse this procedure.

THRUSTER

- 3.4 Clean the pushrod as required. If the air supply used is wet, the drain plug (15) should be removed at intervals to release any accumulated water.
- 3.5 In the event of leakage or malfunction of the thruster, the diaphragm (12) can be quickly replaced after dismantling the thruster. When re-assembling, ensure that the larger end of the return spring is located in the recess in the front cap.
- 3.6 Before re-assembly examine the wiper seal (6), which serves both to retain grease and to exclude dirt from the bush bearings. The wiper seal is of all rubber construction and is easily replaced without tools. The section of the pushrod (8) which moves through the wiper seal should be cleaned with a very slight lubricant film. Fill the grease reservoir in the bore of the front cap and the indentations in the bushes with fresh grease.
- 3.7 Ensure that the beaded edge of the diaphragm is located correctly in the grooves, and tighten the bolts progressively until the flanges are in contact all round.

4. Recommended Lubricants

- 4.1 Caliper: Medium grease containing Molybdenum disulphide.

e.g. Castrol LMM

Shell Alvania 2 + MoS₂

- 4.2 Thruster: Medium lithium based grease with rust inhibitors

e.g. Duckham's Keenomax L2

Castrol AP 2

Shell Alvania R2

5. Spares

- 5.1 A spare set of brake pads, a diaphragm and a set of seals should be kept in a cool, dry, dark place where there is no chance of contamination.
- 5.2 For caliper spares see Data Sheet DB 3604.

6. Service

Address all enquiries regarding this equipment to your Twiflex agent or direct to Twiflex Limited.



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