

benzlers

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Series BD - Screw Jacks
Installation & Maintenance



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Product Safety Information

IMPORTANT

General - The following information is important in ensuring safety. It **must** be brought to the attention of personnel involved in the selection of power transmission equipment, those responsible for the design of the machinery in which it is to be incorporated and those involved in its installation, use and maintenance.

Our equipment will operate safely provided it is selected, installed, used and maintained properly. As with any power transmission equipment **proper precautions must be taken** as indicated in the following paragraphs, to ensure safety.

Potential Hazards - these are **not** necessarily listed in any order of severity as the degree of danger varies in individual circumstances. It is important therefore that the list is studied in its entirety:-

- 1) Fire/Explosion
 - (a) Oil mists and vapour are generated within gear units. It is therefore dangerous to use naked lights in the proximity of gearbox openings, due to the risk of fire or explosion.
 - (b) In the event of fire or serious overheating (over 300 oC), certain materials (rubber, plastics, etc.) may decompose and produce fumes. Care should be taken to avoid exposure to the fumes, and the remains of burned or overheated plastic/rubber materials should be handled with rubber gloves.
- 2) Guards - Rotating shafts and couplings must be guarded to eliminate the possibility of physical contact or entanglement of clothing. It should be of rigid construction and firmly secured.
- 3) Noise - High speed gearboxes and gearbox driven machinery may produce noise levels which are damaging to the hearing with prolonged exposure. Ear defenders should be provided for personnel in these circumstances. Reference should be made to the Department of Employment Code of Practice for reducing exposure of employed persons to noise.
- 4) Lifting - Where provided (on larger units) only the lifting points or eyebolts must be used for lifting operations (see maintenance manual or general arrangement drawing for lifting point positions). Failure to use the lifting points provided may result in personal injury and/or damage to the product or surrounding equipment. Keep clear of raised equipment.
- 5) Lubricants and Lubrication
 - (a) Prolonged contact with lubricants can be detrimental to the skin. The manufacturer's instruction must be followed when handling lubricants.
 - (b) The lubrication status of the equipment must be checked before commissioning. Read and carry out all instructions on the lubricant plate and in the installation and maintenance literature. Heed all warning tags. Failure to do so could result in mechanical damage and in extreme cases risk of injury to personnel.
- 6) Electrical Equipment - Observe hazard warnings on electrical equipment and isolate power before working on the gearbox or associated equipment, in order to prevent the machinery being started.
- 7) Installation, Maintenance and Storage
 - (a) In the event that equipment is to be held in storage, for a period exceeding 6 months, prior to installation or commissioning, we must be consulted regarding special preservation requirements. Unless otherwise agreed, equipment must be stored in a building protected from extremes of temperature and humidity to prevent deterioration.
The rotating components (gears and shafts) must be turned a few revolutions once a month (to prevent bearings brinelling).
 - (b) External gearbox components may be supplied with preservative materials applied, in the form of a "waxed" tape overwrap or wax film preservative. Gloves should be worn when removing these materials. The former can be removed manually, the latter using white spirit as a solvent.
Preservatives applied to the internal parts of the gear units do not require removal prior to operation.
 - (c) Installation must be performed in accordance with the manufacturer's instructions and be undertaken by suitably qualified personnel.
 - (d) Before working on a gearbox or associated equipment, ensure that the load has been removed from the system to eliminate the possibility of any movement of the machinery and isolate power supply. Where necessary, provide mechanical means to ensure the machinery cannot move or rotate. Ensure removal of such devices after work is complete.
 - (e) Ensure the proper maintenance of gearboxes in operation. Use only the correct tools and our approved spare parts for repair and maintenance. Consult the Maintenance Manual before dismantling or performing maintenance work.
- 8) Hot Surfaces and Lubricants
 - (a) During operation, gear units may become sufficiently hot to cause skin burns. Care must be taken to avoid accidental contact.
 - (b) After extended running the lubricant in gear units and lubrication systems may reach temperatures sufficient to cause burns. Allow equipment to cool before servicing or performing adjustments.
- 9) Selection and Design
 - (a) Where gear units provide a backstop facility, ensure that back-up systems are provided if failure of the backstop device would endanger personnel or result in damage.
 - (b) The driving and driven equipment must be correctly selected to ensure that the complete machinery installation will perform satisfactorily, avoiding system critical speeds, system torsional vibration, etc.
 - (c) The equipment must not be operated in an environment or at speeds, powers, torques or with external loads beyond those for which it was designed.
 - (d) As improvements in design are being made continually the contents of this catalogue are not to be regarded as binding in detail, and drawings and capacities are subject to alterations without notice.

The above guidance is based on the current state of knowledge and our best assessment of the potential hazards in the operation of the gear units.

Any further information or clarification required may be obtained by contacting our Application Engineers.

Mounting and Maintenance Instruction BD

- 1 The screw jack must not be overloaded.
- 2 The base on which the screw jack is mounted should be strong enough to carry the maximum load and should be rigid enough to prevent swings or turns on the supporting beam of the jack.
- 3 When mounting it is necessary to make sure that the screw jack is carefully adjusted and that connecting shafts and worm shafts are exactly aligned. When jacks, shafts, gear boxes, etc., have been connected, it should be possible to turn the main driving shaft by hand (provided that the jacks are unloaded). If there are no signs of seizure or misalignment, the jack system is now ready for normal operation.
- 4 The screw jack should have a longer length of stroke than is actually required of the application. Should it be necessary to use the total length of stroke, this must be done carefully. It is important that the spindle of the screw jack is not screwed beyond the closed height (see catalogue). Otherwise the worm gear could be severely damaged.
- 5 The screw jack spindle must not be permitted to collect dust or sand in the threads. If possible, the spindle should be retracted to the closed position when not in service.
- 6 Maximum wear for screw jacks type BD and BDL is reached when the thread thickness of the worm wheel or lifting nut is reduced to 50%. Worm wheel or lifting nut must then be replaced. For single threaded trapezoid spindles the permitted wear is $\frac{1}{4}$ of the lead. The customer should regularly check that the normal permitted wear is not exceeded.
- 7 If the screw jack is stored during a longer period, it should be kept in dry environment and protected from dirt and dust. After 5 years, the grease should be renewed.

Lubrication BD

Type of grease

At ambient temperature -30°C to +30°C:

BP	Energrease LS-EP2
Castrol	Spheerol EPL2
Esso	Beacon EP2
Gulf	Gulflex MP
Mobil	Mobilux EP2
Shell	Alvania EP grease 2 or Retinax A
SKF	Alfalub LGEP2
Texaco	Multifak EP2

At ambient temperature -45°C to -30°C:

Mobil	Mobil SHC32
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At ambient temperature +30°C to +70°C:

Mobil	Mobil SHC100 with Viton seal rings
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Lubrication Intervals

Normal Duty:	Every 30 h of duty ($v < 1000$ mm/min)
Ardous Duty:	Every 10 h of duty ($v > 1000$ mm/min)
Grease Renewal:	Every 400 h of duty

Grease Quantity in Screw Jack Body

<u>Size</u>	<u>Quantity</u>
BD/BDL/BDKL 27	0.3 kg
BDK 27	0.4 kg
BD/BDL/BDKL 40	0.5 kg
BDK 40	0.7 kg
BD/BDL/BDKL 58	0.9 kg
BDK 58	1.7 kg
BD/BDL/BDKL 66	1.2 kg
BDK 66	2.0 kg
BD/BDL 86	1.4 kg
BD/BDL 100	2.5 kg
BD/BDL 125	5.2 kg
BD/BDL 200	15 kg

On screw jacks type BDL and BDKL, the spindle should always be lubricated with a thin film of grease.

CONTACT US

AUSTRALIA

**Radicon Transmission
(Australia) PTY Ltd**
Australia

Tel: +61 488 054 028

EUROPE

Benzler TBA BV
Jachthavenweg 2
NL-5928 NT Venlo

Austria
Tel: +43 7 229 618 91
Fax: +43 7 229 618 84

France
Tel: +33 687 718 711
Fax: +31 77 324 59 01

Germany
Tel: 0800 350 40 00
Fax: 0800 350 40 01

Italy
Tel: +39 02 824 3511

Netherlands & the rest of Europe
Tel: +31 77 324 59 00
Fax: +31 77 324 59 01

DENMARK

Benzler Transmission A/S
Fuglebævej 3D
DK-2770 Kastrup,
Denmark

Tel: +45 36 34 03 00
Fax: +45 36 77 02 42

FINLAND

Oy Benzler AB
Vanha Talvitie 3C
FI-00580 Helsingfors,
Finland

Tel: +358 9 340 1716
Fax: +358 10 296 2072

INDIA

**Elecon. Engineering
Company Ltd.**
Anand Sojitra Road
Vallabh Vidyanagar
388120 Gujarat
India

Tel: +91 2692 236513
Fax: +91 2692 227484

SWEDEN & NORWAY

AB Benzlers
Box 922 (Landskronavägen 1)
251 09 Helsingborg
Sweden

Tel: +46 42 18 68 00
Fax: +46 42 21 88 03

THAILAND

**Radicon Transmission
(Thailand) Ltd**
700/43 Moo 6
Amata Nakorn Industrial Estate
Tumbol Klongtumru
Muang,
Chonburi
20000
Thailand

Tel: +66 3845 9044
Fax: +66 3821 3655

UNITED KINGDOM

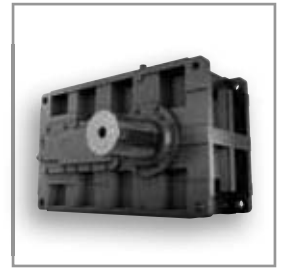
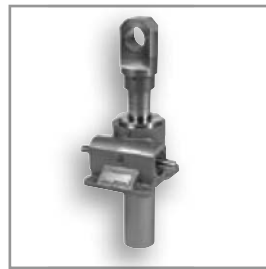
Radicon Transmission UK Ltd
Unit J3
Lowfields Business Park,
Lowfields Way, Elland
West Yorkshire, HX5 9DA

Tel: +44 (0) 1484 465 800
Fax: +44 (0) 1484 465 801

USA

Radicon USA Transmission Ltd
1599 Lunt Avenue
Elk Grove Village
Chicago
Illinois
60007
USA

Tel: +1 847 593 9910
Fax: +1 847 593 9950



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Benzlers

Denmark +45 36 34 03 00
Finland +358 9 340 1716
Germany +49 800-350 4000
Sweden +46 42 186800
The Netherlands +31 77 324 59 00
www.benzlers.com

Radicon

Thailand +66 3845 9044
United Kingdom +44 (0) 1484 465 800
USA +1 847 593 9910
www.radicon.com