



Brisbane City



**OPERATION
AND
MAINTENANCE MANUAL**

FIELD ENGINEERING

**PROJECT : ROGHAN ROAD HARDFILL
LEACHATE PUMP**



Mono®

English

Installation, Operation and Maintenance Instructions

E Range (Sizes 0X2 and below)

OMMP/009/01/R4

Mono Pumps



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INSTALLATION				
1.1 INSTALLATION AND SAFETY RECOMMENDATIONS		Mono pumps are normally installed in a horizontal position with baseplates mounted on a flat surface, grouted in and bolted, thus ensuring firm fixing and a reduction in noise and vibration.		
<p>In common with other items of process plant a pump must be installed correctly to ensure satisfactory and safe operation. The pump must also be maintained to a suitable standard. Following these recommendations will ensure that the safety of personnel and satisfactory operation of the pump is achieved.</p>		<p>The unit should be checked after bolting down to ensure that the alignment of the pump to its prime mover is correct.</p> <p>VERTICAL MOUNTING P Range Pumps Only</p> <p>The P range pumps are intended for vertical installation. Care must be taken when lifting the pump into the vertical position. Normally 'P' range pumps will be designed with a sole plate that will be bolted to the customers framework.</p> <p>If the pump is to be mounted in any way other than described above, confirmation of the installation must be agreed with Mono Pumps Limited. All the pipework should be independently supported.</p>		
1.2.1. GENERAL				
<p>When handling harmful or objectionable materials, adequate ventilation must be provided in order to disperse dangerous concentrations of vapours. It is recommended that wherever possible, Mono pumps should be installed with provision for adequate lighting, thus ensuring that effective maintenance can be carried out in satisfactory conditions. With certain product materials, a hosing down facility with adequate draining will simplify maintenance and prolong the life of pump components.</p>				
1.2.2. SYSTEM DESIGN AND INSTALLATION		1.3.1 HANDLING		
<p>At the system design stage, consideration must be given to provision of filler plugs, and the installation of non-return and / or isolating valves.</p>		<p>During installation and maintenance, attention must be paid to the safe handling of all items. Where a pump or its components weigh in excess of 20 kg (45lb) it is recommended that suitable lifting tackle should be used to ensure that personal injury or damage to components does not occur.</p>		
<p>i. HORIZONTAL MOUNTING All ranges excluding P Range</p>		<p>For safe handling of both bareshaft pumps and pump units (pump / gearbox / motor etc) slings should be used.</p>		

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The position of the slings will depend upon the specific pump/unit construction and should be carried out by personnel with the relevant experience to ensure that the pump is not damaged and injury to personnel does not occur.

If eye bolts do exist then these should only be used for lifting the individual components for which they are supplied.

1.3.2 STORAGE

SHORT TERM STORAGE

Where a pump has to be stored for 6 months or less then the following steps are advised:-

1. Store pump inside wherever possible or if this is not feasible then provide protective covering. Do not allow moisture to collect around the pump.
2. Remove the drain plug, if fitted. Any inspection plates fitted should also be removed to ensure that the suction housing can drain and dry completely.
3. Loosen the packing gland and inject sufficient grease into the stuffing box. Tighten the gland nut hand tight. If a water flush system is to be used do not grease; a small amount of light oil is recommended for these.
4. See Manufacturers' Instructions for motor / gearbox / drive instructions for storage procedures.

LONG TERM STORAGE

If the pump is to be kept in storage for more than six months then in addition to the above the following procedures should be carried out regularly (every 2 - 3 weeks if possible):

1. If practicable rotate the pump at least three quarters of one revolution to avoid the rotor setting in the stator.
2. Note, however, that the pump is not to be rotated for more than two revolutions each time because damage could be caused to the rotor / stator elements.

IMMEDIATELY PRIOR TO INSTALLATION AND STARTING

Before installing the pump please ensure that all plugs and inspection plates are replaced and that excess grease / oil is removed from the stuffing box.

1.4 ELECTRICAL

Electrical connection should only be made using equipment suitable for both rating and environment. Where any doubts exist regarding the suitability of equipment, Mono Pumps Limited, should be consulted before proceeding. Normally the Mono pump should be installed with starting equipment arranged to give direct on line starting.

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	<p>Earthing points will be provided on electric drives (if supplied) and it is essential that these are correctly connected. When the motor is being wired and checked for rotation, the start / stop sequence must be instantaneous to prevent dry running or pressurising upstream equipment. (Check direction arrow on pump nameplate). The electrical installation should include appropriate isolating equipment to ensure that the pump unit is safe to work on.</p>	1.6	<p>valve, as this could result in mechanical failure.</p>
1.5	<p>RELIEF VALVES / OVER PRESSURISATION / NON - RETURN VALVES</p> <ol style="list-style-type: none"> 1. It is recommended that a suitable safety device is installed on the discharge side of the pump to prevent over-pressurisation of the system. 2. It is also recommended that a non-return valve is installed on the discharge side of the pump to prevent reverse flow through the system. <p>When both are installed it is advised that the relief valve is positioned closer to the pump than the non-return valve.</p> <p>IMPORTANT</p> <p>The pump must never run against a closed inlet or outlet</p>		<p>GENERAL SAFETY</p> <p>GREAT CARE MUST BE TAKEN TO PROTECT ALL ELECTRICAL EQUIPMENT FROM SPLASHING WHEN HOsing DOWN. WHERE MONO PUMPS LIMITED HAVE SUPPLIED A BARESHAFT PUMP THE ONUS IS ON THE USER TO FIT ADEQUATE GUARDS IN COMPLIANCE WITH THE REQUIREMENTS OF THE RELEVANT REGULATIONS.</p> <p>All nuts and bolts, securing flanges and base mounting fixtures must be checked for tightness before operation. To eliminate vibration, the pump must be correctly aligned with the drive unit, and all guards must be securely fixed in position. When commissioning the plant, all joints in the system must be checked thoroughly for leakage. If, when starting, the pump does not appear to operate correctly, the plant must be shut down immediately and the cause of the malfunction established before operations are recommenced. It is recommended that depending upon plant system operation, either a combined vacuum and pressure gauge, or a vacuum gauge only be fitted to the pump inlet port, and a pressure gauge fitted to the outlet port, these will then continuously monitor the pump operating conditions.</p>

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1.7 DUTY CONDITIONS

Pumps should only be installed on duties for which Mono Pumps Limited have specified the materials of construction, flow rates, pressure, temperature, speed etc. Where dangerous materials are to be pumped, consideration must be given to the safe discharge from relief valves, gland drains etc.

IF THE DUTY SHOULD BE CHANGED, MONO PUMPS LIMITED SHOULD BE CONTACTED AND THEIR RECOMMENDATIONS SOUGHT IN THE INTEREST OF APPLICATION, SAFETY OF PLANT, EFFICIENCY AND PUMP LIFE.

2. START-UP PROCEDURE

Pumps must be filled with liquid before starting. The initial filling is not for priming purposes, but to provide the necessary lubrication of the stator until the pump primes itself.

When the pump is stopped, sufficient liquid will normally be trapped in the rotor / stator assembly to provide lubrication upon re-starting. If, however, the pump has been left standing for an appreciable time, moved to a new location, or has been dismantled and re-assembled, it must be refilled with liquid and

given a few turns before starting. The pump is normally somewhat stiff to turn by hand owing to the close rotor / stator fit. However, this stiffness disappears when the pump is running normally against pressure.

2.1 DRY RUNNING

NEVER RUN THE PUMP IN A DRY CONDITION EVEN FOR A FEW REVOLUTIONS OR THE STATOR WILL BE DAMAGED IMMEDIATELY. CONTINUAL DRY RUNNING COULD PRODUCE SOME HARMFUL OR DAMAGING EFFECTS.

2.2 ROTATION

PUMP ROTATION DETAILS

<u>PUMP RANGE</u>	<u>BI-DIRECTIONAL</u>	<u>COMMENT</u>
E	Yes	_____
Monobloc B	Yes	_____
Merlin Industrial	Yes	_____
S	Yes	_____
LF	Yes	_____
W	No	**
Merlin Widethroat	No	**
MM ML	No	*
MS	No	**
G	No	*
CB/SB	No	*
Placer	No	**
Grout Injection	No	**
P	No	*

* Clockwise when viewed from drive end.

** Anti-clockwise when viewed from drive end.

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DIRECTIONS OF ROTATION	2.3.2 MECHANICAL SEALS - ALL PUMPS		
<p>BEFORE THE DIRECTION OF ROTATION IS CHANGED, MONO PUMPS LIMITED MUST BE CONSULTED SO THAT THE SUITABILITY OF THE PUMP CAN BE CONFIRMED WHEN OPERATING ON THE NEW DUTY.</p>	2.4. GUARDS		
2.3.1. GLAND PACKING	2.5. WARNING / CONTROL DEVICE		
<p>Where a pump is supplied fitted with gland packing (manufactured from a non asbestos material) the gland will require adjustment during the initial running in period. Under normal working conditions a slight drip from the gland under pressure does not harm and assists in lubricating the packing. A gland drip is, however, undesirable when handling corrosive, degreasing, or abrasive materials. Under these conditions the gland must be tightened the minimum amount whilst the pump is running to ensure satisfactory sealing when under pressure, or to stop entry of air when under suction conditions.</p>	2.6. PUMP OPERATING TEMPERATURE		
<p>Provision of a gland drain should be considered, especially for the leakage of hazardous products.</p>	In these instances, personnel must be made aware of this and suitable warnings / guarding used.		
<p>CARE IS REQUIRED WHEN ADJUSTING THE GLAND WHILST PUMP IS RUNNING.</p>			

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2.7 NOISE LEVELS

1. The noise sound pressure level will not exceed 85dB at one metre distance from the pump. This is based on a typical installation and does not necessarily include noise from other sources or any contribution from building reverberation.
2. For pumps identified below, the noise levels vary between 85 and 95dB but will not exceed 95dB at one metre distance from the pump.

Pump Sizes (based on E Range Pumping Element)

Single Stage	Size 12 and above
Two Stage	Size 9 and above
Four Stage	Size 7 and above
Six Stage	Size 7 and above
Eight Stage	Size 6 and above

2.8 LUBRICATION

Pumps fitted with bearings should be inspected periodically to see if grease replenishment is necessary, and if so, grease should be added until the chambers at the ends of the bearing spacer are approximately one third full.

Periodic bearing inspection is necessary to maintain optimum bearing performance. The most expedient time to inspect is during periods of regular scheduled equipment downtime - for routine maintenance or for any other reason.

Under tropical or other arduous

conditions, however, a more frequent examination may be necessary. It is therefore advisable to establish a correct maintenance schedule or periodic inspection.

BP Energearse LC2 or its equivalent must be used for replenishment.

PUMP UNITS

Where a pump unit is dismantled and re-assembled, consideration must be given to ensure that where appropriate the following steps are covered.

1. Correct alignment of pump / gearbox
2. Use of appropriate couplings and bushes
3. Use of appropriate belts and pulleys correctly tensioned.

2.10 CLEANING PRIOR TO OPERATION

Non Food Use

During the commissioning of a new pump or recommissioning of an overhauled pump, it is advisable to clean the pump prior to the initial operation of the pump in the process.

Food Use

When a pump has been supplied for a food application, it is important to ensure that the pump is clean prior to initial operation of

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	<p>the pump. Therefore, it is important that a clean-in-place treatment is executed on the pump at the following times:-</p> <ol style="list-style-type: none"> 1. When the pump is first commissioned for use. 2. When any spare components are fitted into the wetted area of the pump. <p>A recommended CIP procedure is as follows:</p> <ol style="list-style-type: none"> 1. 2.5% W/V sodium hydroxide for 20 mins at 80 °C 2. Towns water for 20 mins at 80 °C 3. 2.0% V/V nitric acid for 20 mins at 80 °C 4. Towns water for 20 mins at 80 °C <p>The four stages constitute one cycle and we recommend that this cycle is used to clean the pump before use on food.</p> <p>Once the pump has been commissioned, the cleaning process will depend upon the application. The user must therefore ensure that their cleaning procedures are suitable for the duty for which the pump has been purchased.</p> <h4>2.11 WIDETHROAT PUMPS</h4> <p>Specific pumps may have auger feed screws, with or without a bridge breaker system to feed the pumping element. If the pump</p>		<p>installation requires that these cannot be enclosed, care must be taken to ensure personnel cannot gain access whilst the pump is operating. If this is not possible an emergency stop device must be fitted nearby.</p> <p>2.12 EXPLOSIVE PRODUCTS / HAZARDOUS ATMOSPHERES</p> <p>In certain instances the product being pumped may well be of a hazardous nature.</p> <p>In these installations consideration must be given to provide suitable protection and appropriate warnings to safeguard personnel and plant.</p> <p>2.13 ACCESS PORTS</p> <p>Where access ports are fitted then the following steps must be followed prior to removal:</p> <ol style="list-style-type: none"> 1. Pump must be shut down and the electrical supply isolated. 2. Protective clothing should be worn, especially if the pumped product is obnoxious. 3. Remove access plate with care utilising where possible drip trays to collect product leakage. <p>Access ports are included to assist in removing blockages and to allow a visual check on the components within the suction chamber.</p>

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<p>It is not to be considered as an additional method in dismantling the pump.</p> <p>Re-assembly of the plate should be completed using new gaskets prior to the pump being switched on.</p>			<p>the stator to enable the capacity of the pump to be reinstated. Over tightening of the stator could easily result in damage to the driver by overload and so extreme care must be taken when carrying out these adjustments. It is therefore advisable to make the adjustment while the pump is running and power readings can be monitored.</p>
<h2>2.14 ADJUSTABLE STATORS</h2> <p>If adjustable stators are fitted then the following steps must be followed for adjusting the clamping devices.</p> <p>The adjustable stator assembly is designed to give an even compression around the stator circumference. It is designed to be used when pump performance reduces through wear to an unacceptable level, to restore the required flow rate.</p> <p>The stator compression is increased using the following steps:-</p> <ol style="list-style-type: none"> 1. Release the six locking screws $\frac{1}{2}$ a turn. 2. Tighten the eight clamp screws until adjustment allowed by releasing the lock screws has been taken up. 3. Repeat steps 1 and 2 until the pump performance has been restored to its former level. 			<h3>REMOVAL OF ADJUSTABLE STATOR</h3> <p>The procedure for removal of an adjustable stator is the same as that of a standard, except it is necessary to remove the clamp plates before the stator can be twisted off the rotor. This can be done by undoing the clamp screws; then releasing the clamp plate by using the locking screws as jacking screws to remove the clamp plates.</p> <p>Re-assembly will be done using the reverse procedure.</p>
<h2>2.15 MAINTENANCE OF WEARING COMPONENTS</h2> <h3>2.15.1 ROTOR AND STATOR</h3> <p>The wear rate on these components is dependent on many factors, such as product abrasivity, speed, pressure etc.</p> <p>When pump performance has reduced to an unacceptable level one or possibly both items will need replacing.</p>			
<p>NOTE</p> <p>It is imperative that when adjusting the stator that only sufficient pressure is placed on</p>			

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2.15.2 DRIVE SHAFT - PACKED GLAND

The wear rate of the gland area is dependent on many factors such as product abrasivity and speed.

Regular gland maintenance will maximise the life of the shaft. Replacement of both the gland packing and shaft will be necessary when shaft sealing becomes difficult to achieve.

2.15.3 COUPLING ROD JOINTS

Regular maintenance and lubrication will maximise life of the joints.

Replacement of one or both joint assemblies and possibly the coupling rod maybe necessary when wear is apparent.

It is essential to replace all the joint items with genuine Mono parts to ensure maximum life.

2.15.4 FLEXISHAFT DRIVE PUMPS

With this design there are no wearing items to replace in the drive train, however, if during routine inspection the shaft is visibly damaged / distorted or the protective coating is damaged, then this item should be replaced to avoid unexpected breakdowns.

3.0 ASSEMBLY AND DISMANTLING

Section 4 contains the steps to dismantle and re-assemble the pump. All fastenings must be tightened securely and when identified the appropriate torque figures should be used.

3.1 USE OF ITEMS NOT APPROVED OR MANUFACTURED BY MONO PUMPS LIMITED

The pump and its components have been designed to ensure that the pump will operate safely within the guidelines covered by the legislation. As a consequence Mono Pumps Limited have declared the machine safe to use for the duty specified as defined by the Declaration of Incorporation or Conformity that is issued with this Instruction Manual. The use of replacement items that are not approved by or manufactured by Mono Pumps Limited may affect the safe operation of the pump and it may therefore become a safety hazard to both operators and other equipment. In these instances the Declaration provided will therefore become invalid. The guarantee referenced in the Terms and Conditions of Sale will also be invalidated if replacement items are used that are not approved by or manufactured by Mono Pumps Limited.

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DIAGNOSTIC CHART			
SYMPTOMS	POSSIBLE CAUSES		
1. NO DISCHARGE 2. LOSS OF CAPACITY 3. IRREGULAR DISCHARGE 4. PRIMING LOST AFTER START 5. PUMP STALLS AT START UP 6. PUMP OVERHEATS 7. MOTOR OVERHEATS 8. EXCESSIVE POWER ABSORBED BY PUMP 9. NOISE AND VIBRATION 10. PUMP ELEMENT WEAR 11. EXCESSIVE GLAND OR SEAL WEAR 12. GLAND LEAKAGE 13. SEIZURE	1. 2. 3. 7. 26. 28. 29. 3. 4. 5. 6. 7. 8. 9. 10. 11. 13. 16. 17. 21. 22. 23. 29. 3. 4. 5. 6. 7. 8. 13. 15. 29. 3. 4. 5. 6. 7. 8. 13. 15. 8. 11. 24. 8. 9. 11. 12. 18. 20. 8. 11. 12. 15. 18. 20. 8. 11. 12. 15. 18. 20. 3. 4. 5. 6. 7. 8. 9. 11. 13. 15. 18. 19. 20. 22. 23. 27. 31. 9. 11.. 12. 14. 25. 30. 13. 14. 9. 11. 12. 20.		
LIST OF CAUSES	REMEDIAL ACTIONS		
1. INCORRECT DIRECTION OF ROTATION 2. PUMP UNPRIMED 3. INSUFFICIENT N.P.S.H. AVAILABLE 4. PRODUCT VAPOURISING IN SUPPLY LINE 5. AIR ENTERING SUPPLY LINE 6. INSUFFICIENT HEAD ABOVE SUPPLY VESSEL OUTLET 7. FOOTVALVE / STRAINER OBSTRUCTED OR BLOCKED 8. PRODUCT VISCOSITY ABOVE RATED FIGURE 9. PRODUCT TEMP ABOVE RATED FIGURE 10. PRODUCT VISCOSITY BELOW RATED FIGURE 11. DELIVERY PRESSURE ABOVE RATED FIGURE 12. GLAND OVERTIGHT 13. GLAND UNDERTIGHT 14. GLAND FLUSHING INADEQUATE 15. PUMP SPEED ABOVE RATED FIGURE 16. PUMP SPEED BELOW RATED FIGURE 17. BELT DRIVE SLIPPING 18. COUPLING MISALIGNED 19. INSECURE PUMP / DRIVE MOUNTING 20. SHAFT BEARING WEAR / FAILURE 21. WORN PUMP ELEMENT 22. RELIEF VALVE CHATTER 23. R.V. INCORRECTLY SET 24. LOW VOLTAGE 25. PRODUCT ENTERING PACKING AREA 26. DRIVE TRAIN BREAKAGE 27. NEGATIVE OR VERY LOW DELIVERY HEAD 28. DISCHARGE BLOCKED / VALVE CLOSED 29. STATOR TURNING 30. STUFFING BOX "EATS" PACKING 31. VEE - BELTS	1. REVERSE MOTOR 2. BLEED SYSTEM OF AIR / GAS 3. INCREASE SUCTION HEAD OR REDUCE SPEED / TEMP 4. INCREASE N.P.S.H. AVAILABLE (SEE 3 ABOVE) 5. CHECK PIPE JOINTS / GLAND ADJUSTMENT 6. RAISE VESSEL / INCREASE PIPE SIZE 7. CLEAN OUT SUCTION LINE / VALVES 8. DECREASE PUMP SPEED / INCREASE TEMP 9. COOL THE PRODUCT 10. INCREASE PUMP SPEED / REDUCE TEMP 11. CHECK FOR BLOCKAGES IN DELIVERY LINE 12. ADJUST GLAND SEE O & M INSTRUCTIONS 13. ADJUST GLAND SEE O & M INSTRUCTIONS 14. CHECK FLUID FLOWS FREELY INTO GLAND 15. DECREASE PUMP SPEED 16. INCREASE PUMP SPEED 17. RE - TENSION BELTS 18. CHECK AND ADJUST ALIGNMENT 19. CHECK AND TIGHTEN ALL PUMP MOUNTINGS 20. REPLACE BEARINGS 21. FIT NEW PARTS 22. CHECK CONDITION OF VALVE / RENEW 23. RE - ADJUST SPRING COMPRESSION 24. CHECK VOLTAGE / WIRING SIZES 25. CHECK PACKING CONDITION AND TYPE 26. CHECK AND REPLACE BROKEN COMPONENTS 27. CLOSE DELIVERY VALVE SLIGHTLY 28. REVERSE PUMP/RELIEVE PRESSURE/CLEAR BLOCKAGES 29. REPLACE WORN PARTS / TIGHTEN UP STATOR BOLTS 30. CHECK FOR WORN SHAFT AND REPLACE 31. CHECK AND ADJUST TENSION OR REPLACE		

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E RANGE 0X2 AND BELOW		DRAWING REFERENCE NUMBERS	
DRG REF.	DESCRIPTION	DRG REF.	DESCRIPTION
01A	BODY	P201	HEX HEAD BOLT
01B	BEARING HOUSING	P202	HEX NUT
06A	NAMEPLATE (SOG)	P203	WASHER
06B	NAMEPLATE (DOG)		
08A	GLAND	P401	KEY
10A	GLAND PACKING	P402	SEAL
10B	MECHANICAL SEAL	P403	SEAL
11A	BEARING COVER	P404	SEAL
15A	THROWER GUARD	P409	WASHER
20A	GASKET - GLAND	P410	HEXAGON NUT
20B	GASKET - STATOR SUPPORT RING		
20C	GASKET - STATOR SUPPORT RING	P510	HEXAGON HEAD BOLT
22A	STATOR	P511	HEXAGON NUT
22B	STATOR	P512	WASHER
23A	SUCTION CHAMBER	P513	WASHER
23B	SUCTION CHAMBER EXTN	P514	SEAL
24A	END COVER	P515	SEAL
25A	ROTOR		
26A	FLEXISHAFT		
27A	ADAPTOR - ROTOR		
30A	ROTOR CAP		
31A	LOCKING WASHER		
31B	WASHER - ADAPTOR		
32A	SHAFT		
32B	DRIVE SHAFT - BEARING HOUSING		
35A	BEARING SPACER		
35B	SHAFT SLEEVE		
36A	LOCKING COLLAR - SHAFT		
40A	LANTERN RING		
42A	THROWER		
47A	STATOR SUPPORT RING		
47B	STATOR SUPPORT RING		
59A	COVER PLATE		
59B	INSPECTION COVER PLATE		
62A	SUPPORT FOOT		
62B	SUPPORT FOOT		
65A	GLAND SECTION		
75A	SLEEVE - ROTOR		
76A	ADAPTOR FLANGE		
95A	TIE BAR - STATOR		
95B	TIE ROD		
97A	SUPPORT CHANNEL		
97B	SUPPORT CHANNEL		
P101	BEARING		
P102	BEARING		
P103	CIRCLIP / SEAL		
P104	CIRCLIP / SEAL		
P105	HEXAGON HEAD BOLT		
P106	HEX NUT		
P107	WASHER (PLAIN)		
P108	WASHER (SPRING)		
P109	HEX HEAD SCREW		
P110	HEX NUT		
P111	WASHER (PLAIN)		
P112	WASHER (SPRING)		
P113	HEXAGON HEAD BOLT		
P114	HEX NUT		
P115	WASHER (PLAIN)		
P116	WASHER (SPRING)		
P117	DRIVE SCREW		

IMPORTANT NOTE

THE DRAWING REFERENCES SHOWN GIVE THE DESCRIPTION OF ALL THE PARTS DETAILED ON THE SECTIONAL DRAWINGS IN THIS SECTION OF THE BOOK. THEREFORE SOME OF THE REFERENCES MAY NOT BE SHOWN ON ANY ONE

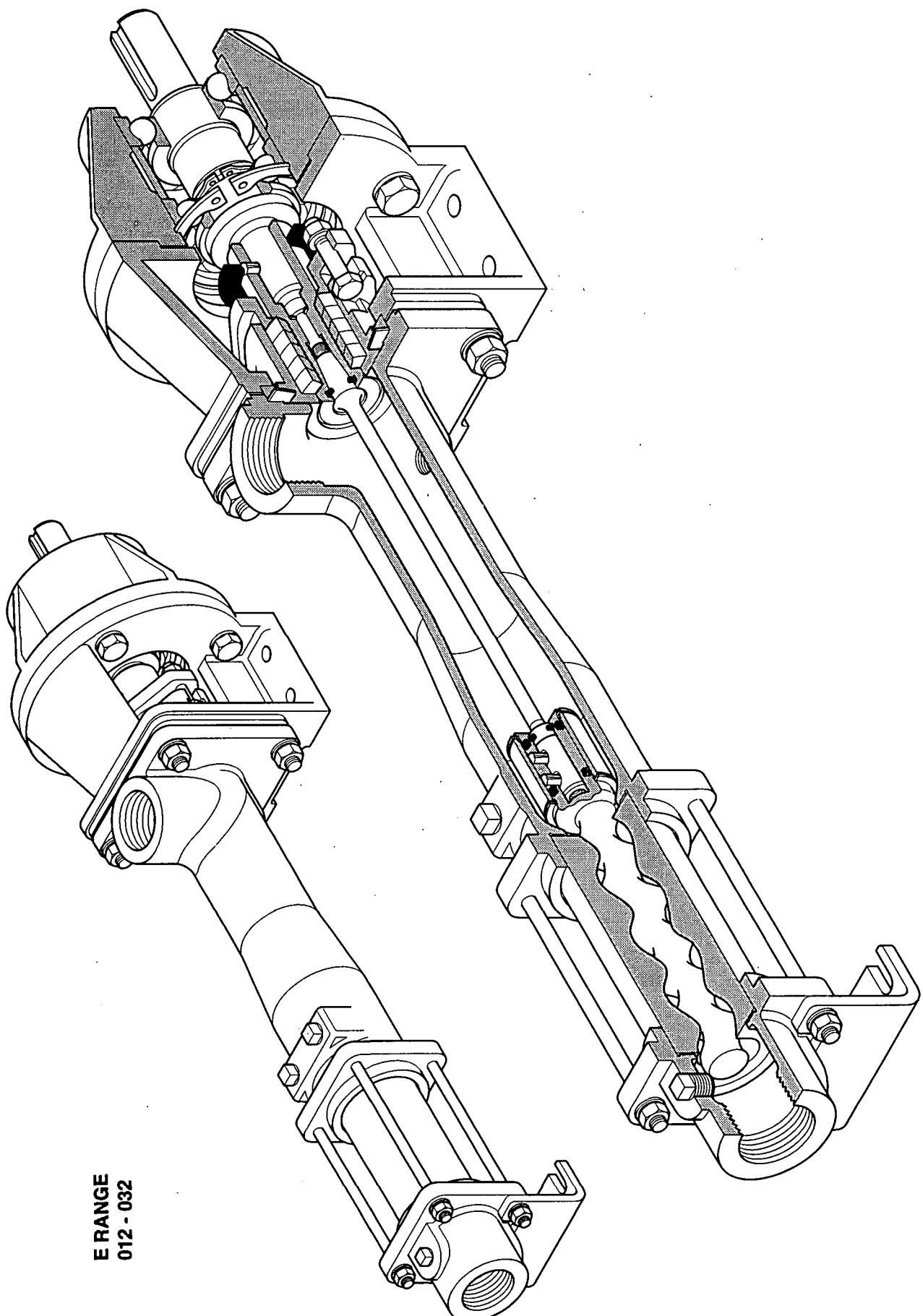
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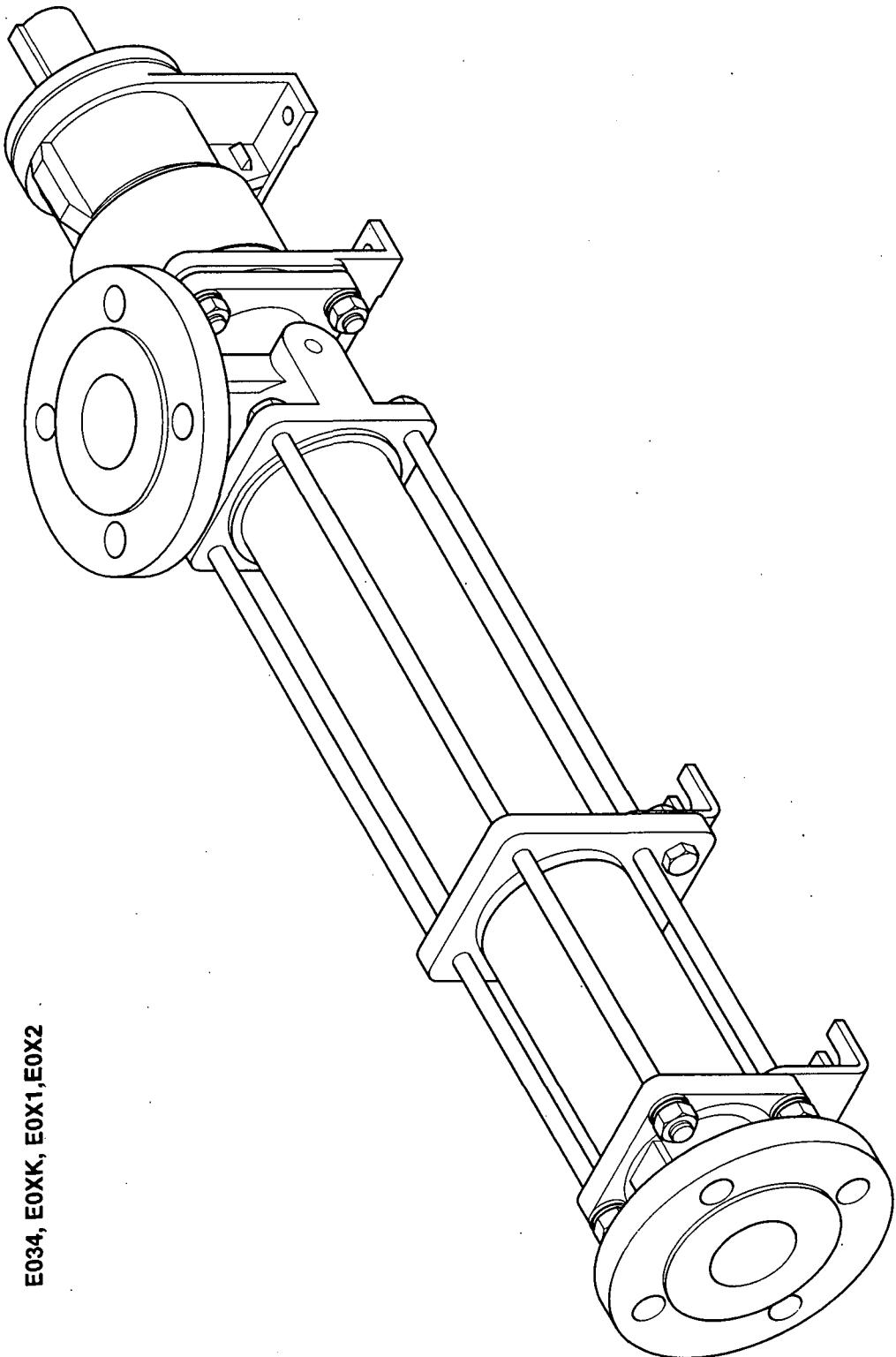
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E034, E0XK, E0X1, E0X2

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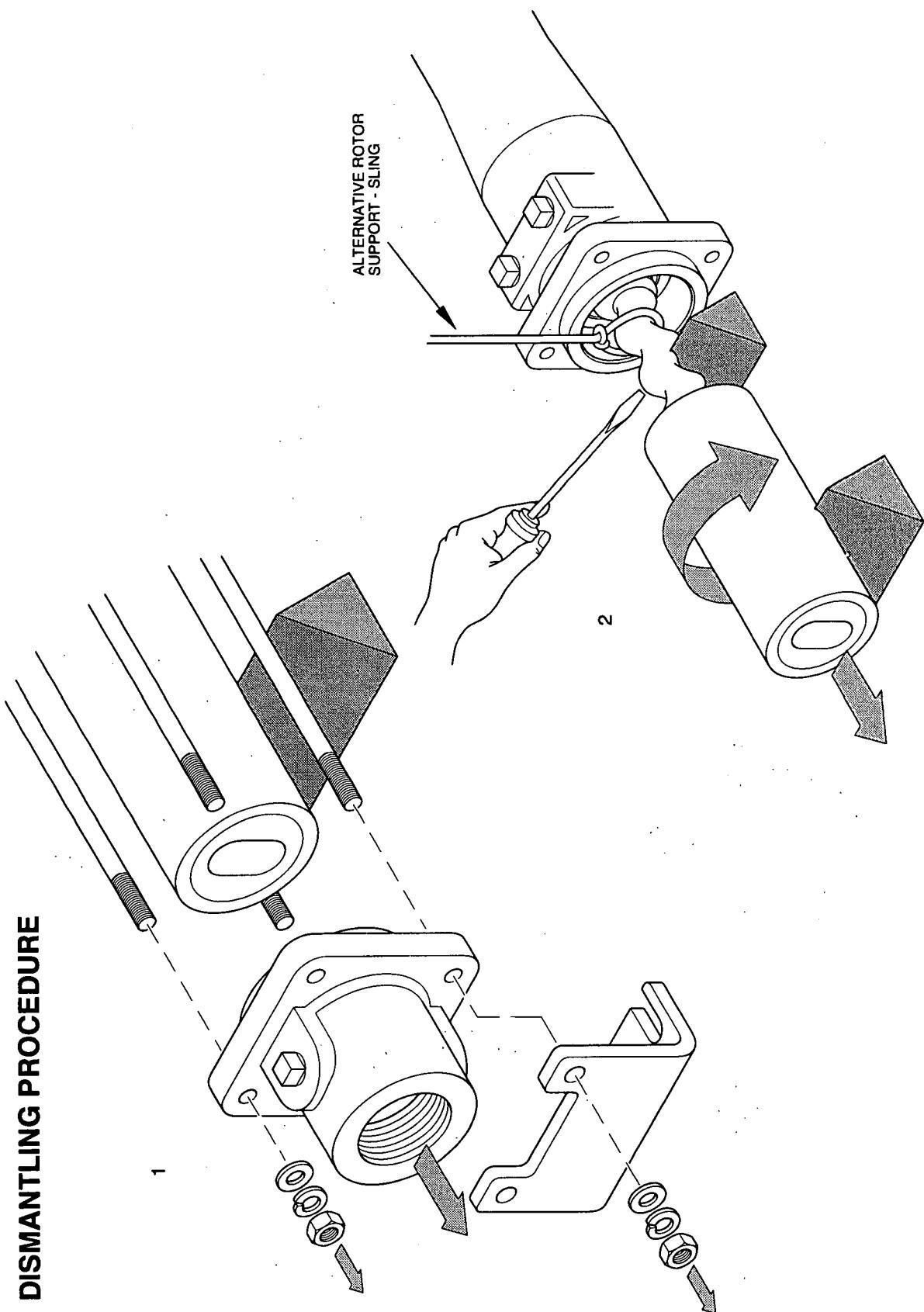
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DISMANTLING PROCEDURE

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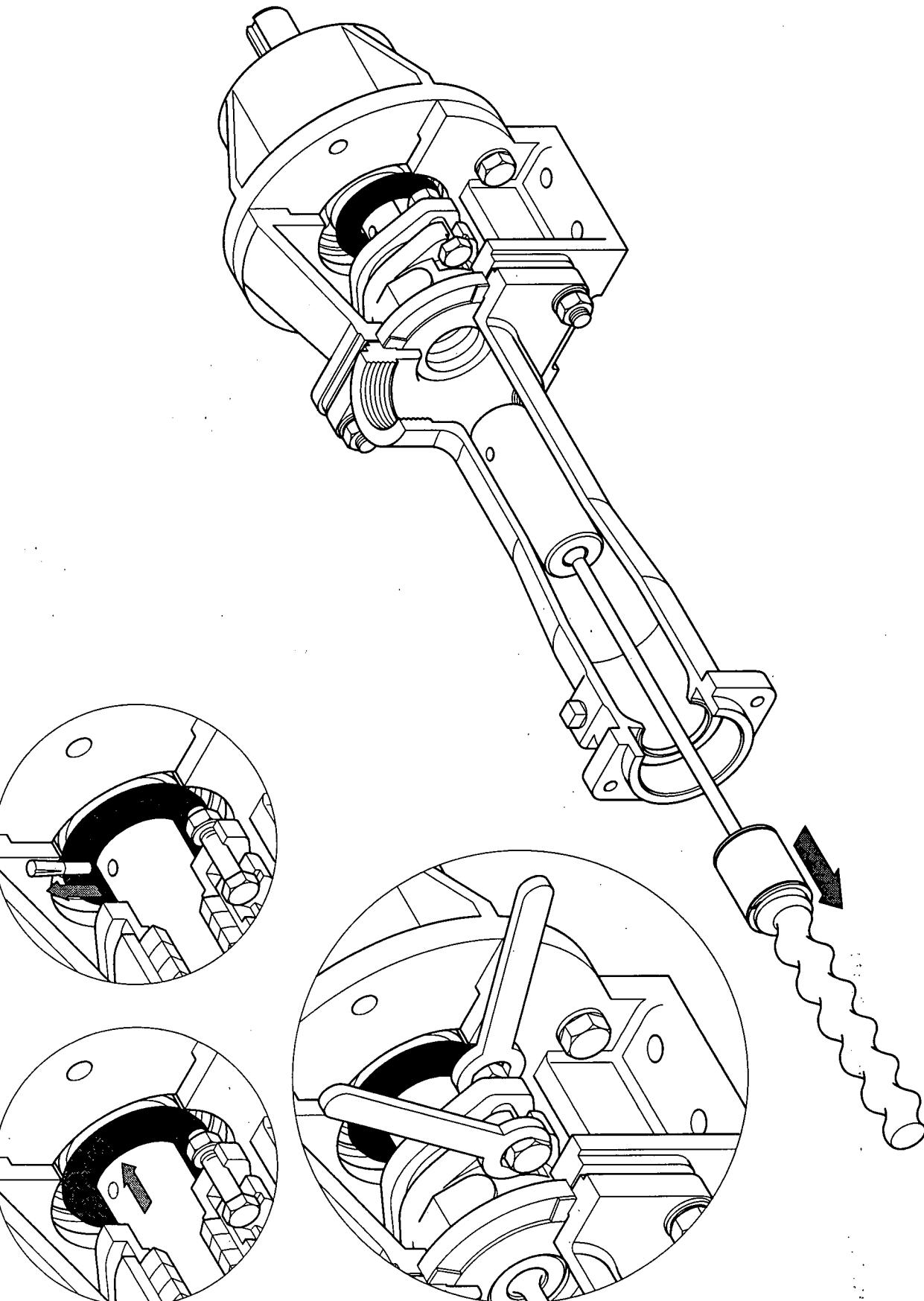
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FOR PUMP SIZES: E012, E014, E021, E022, E024, E031, E03K, E032, E0X1, E0XK



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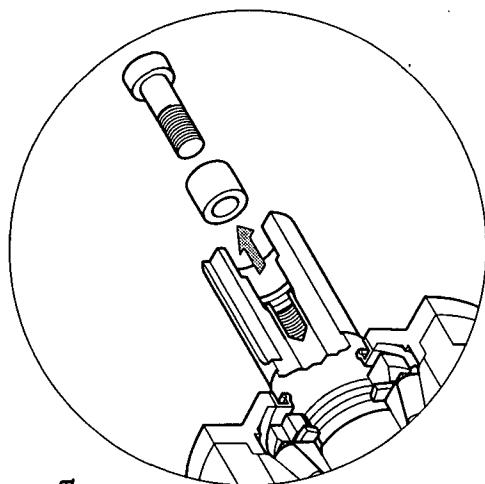
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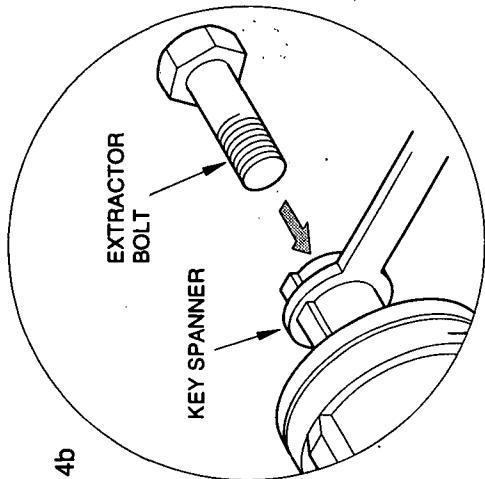
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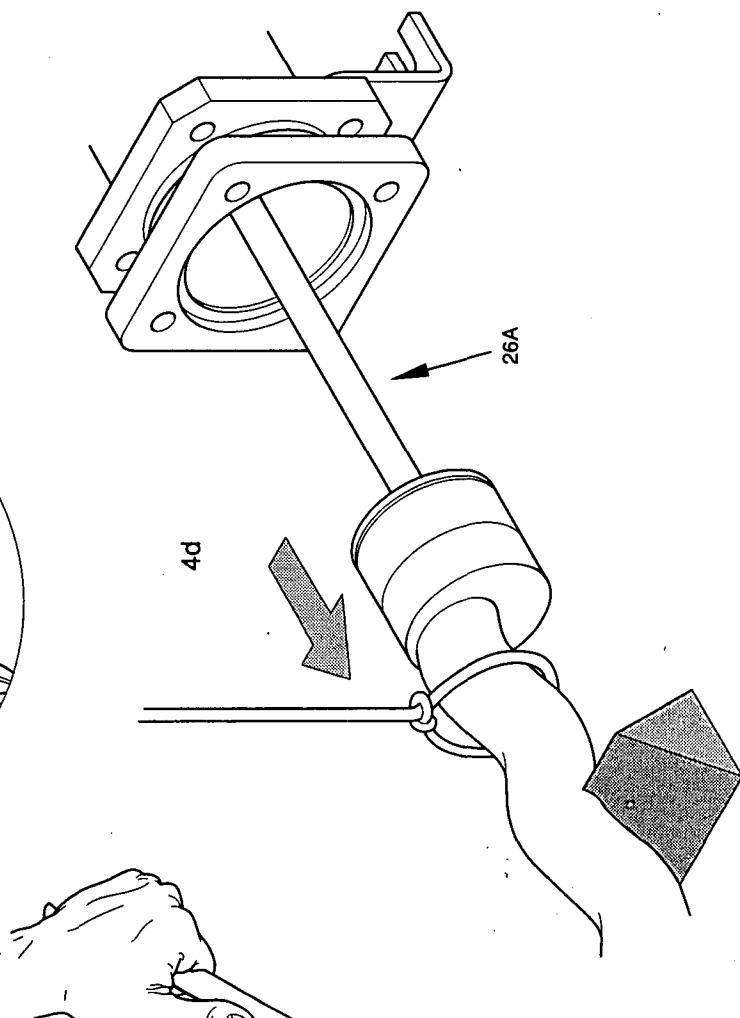
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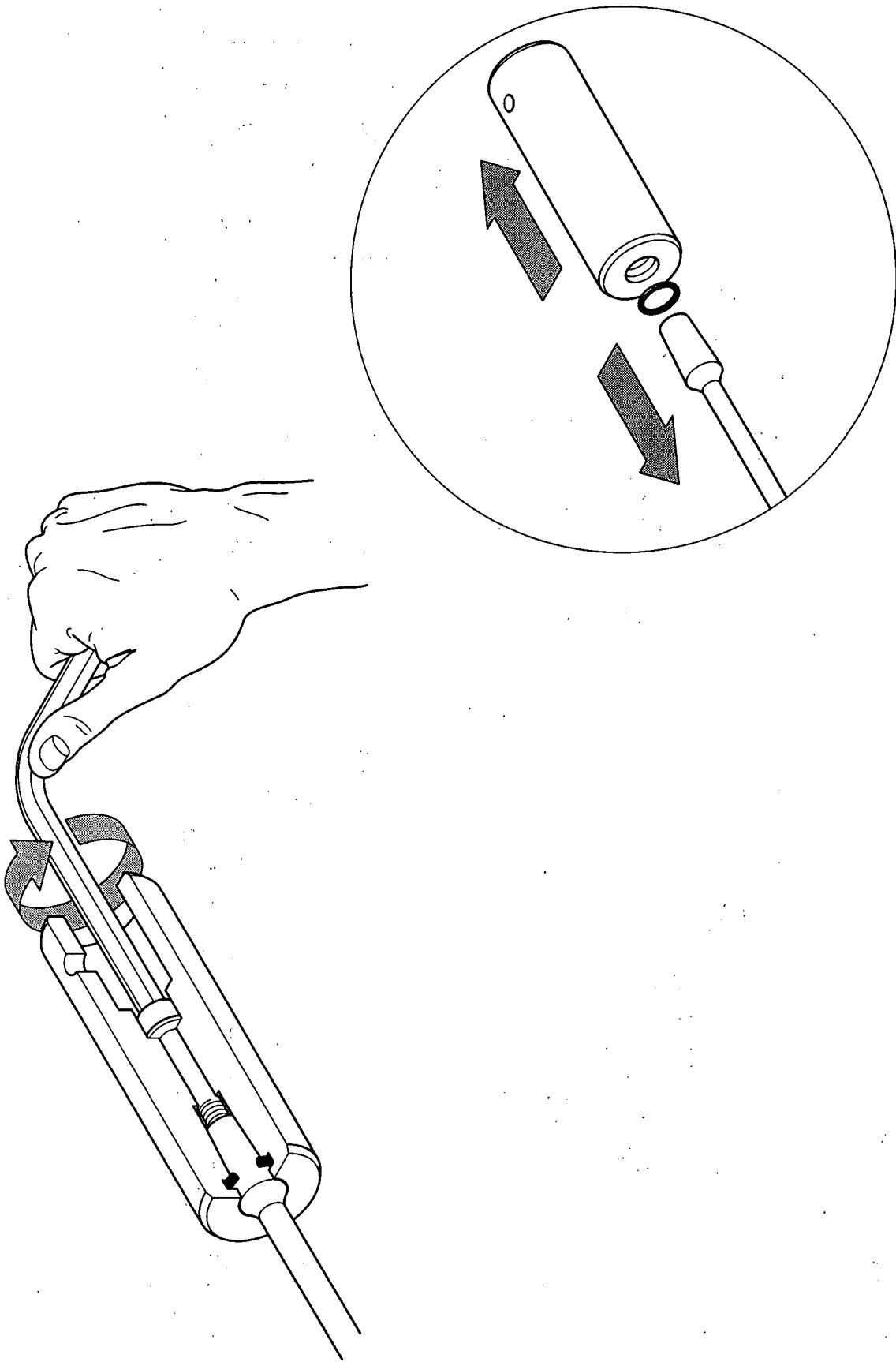
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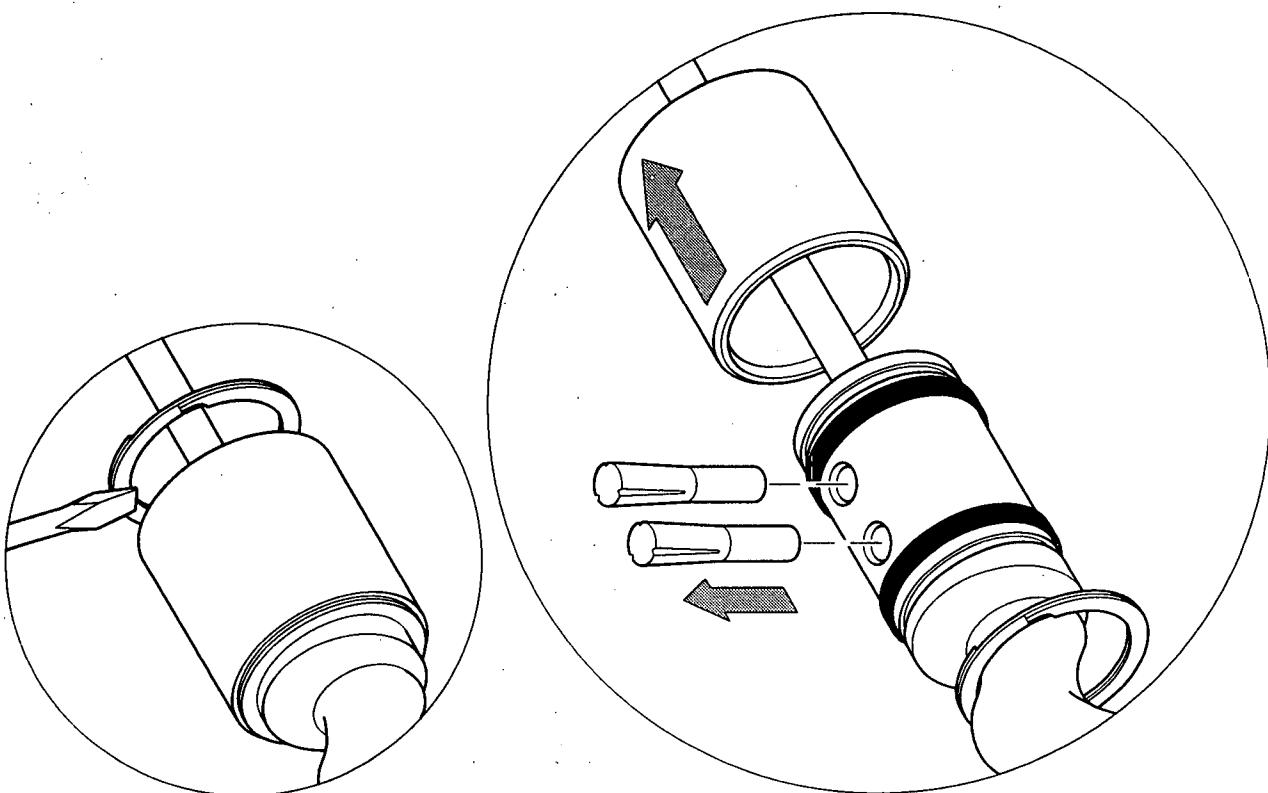
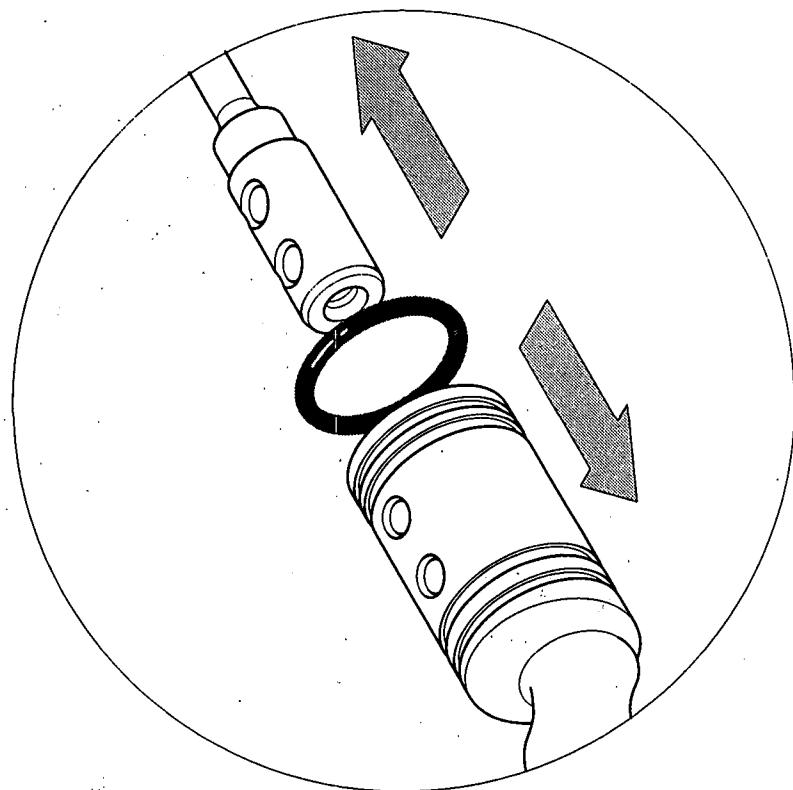
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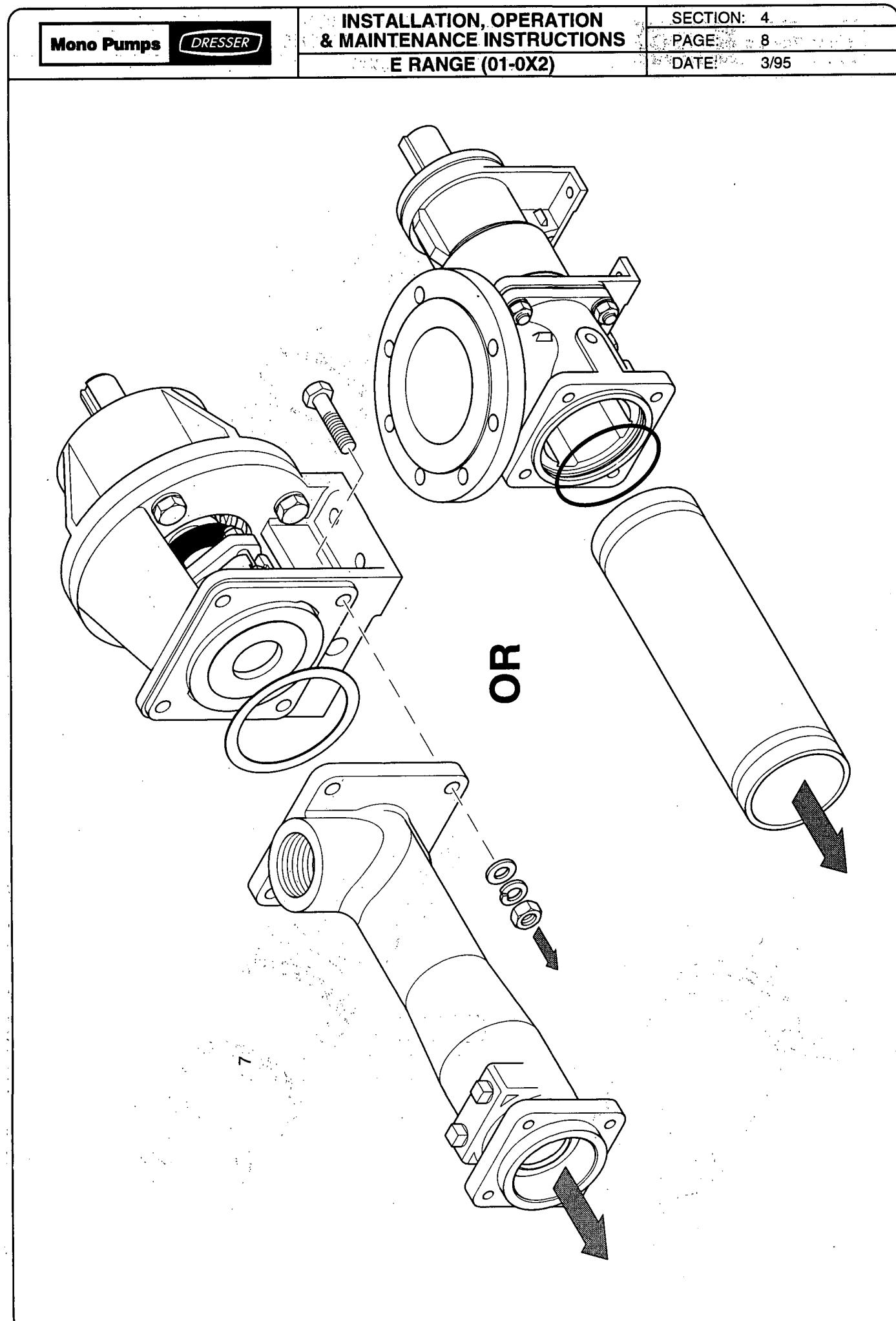
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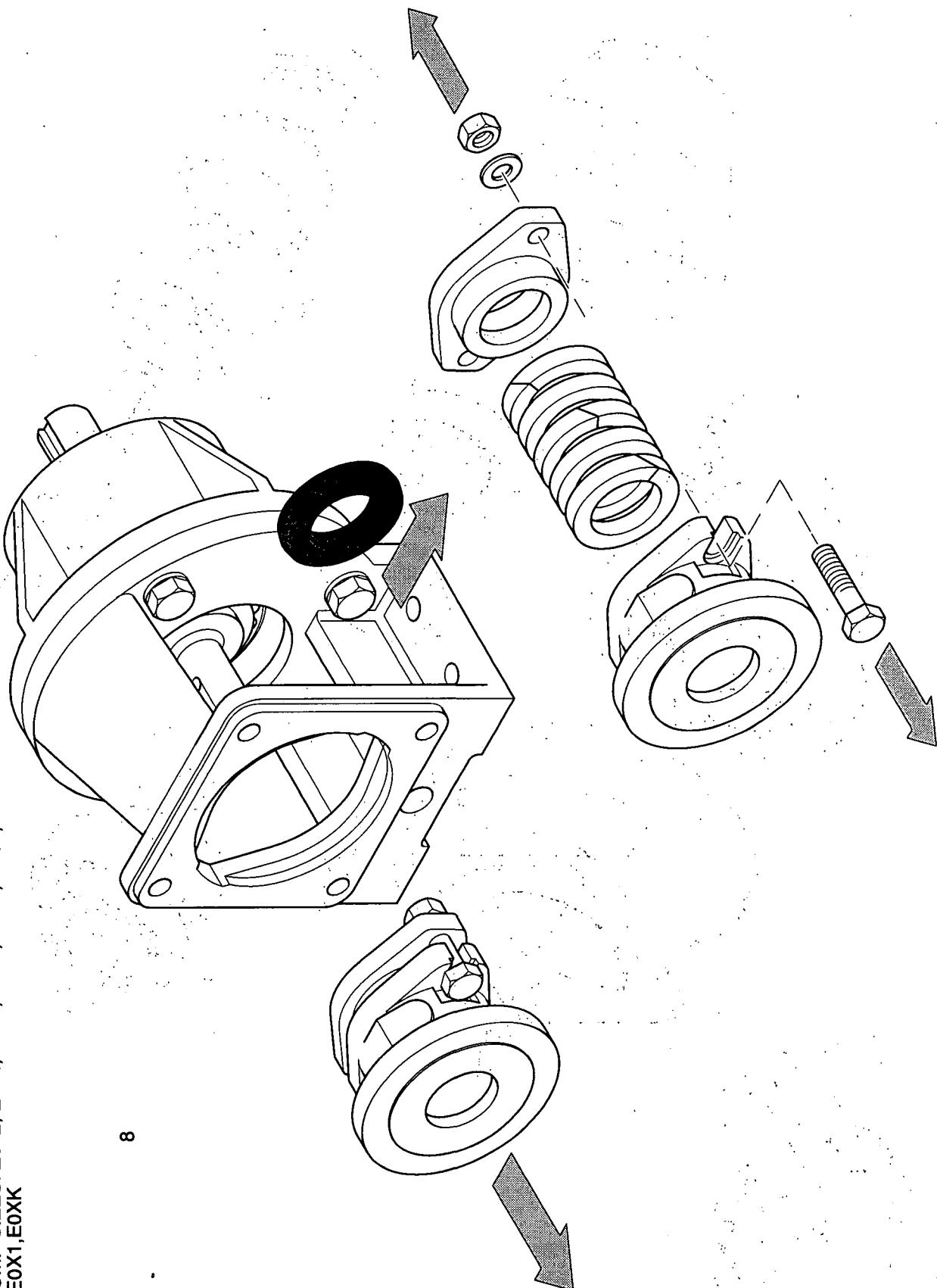


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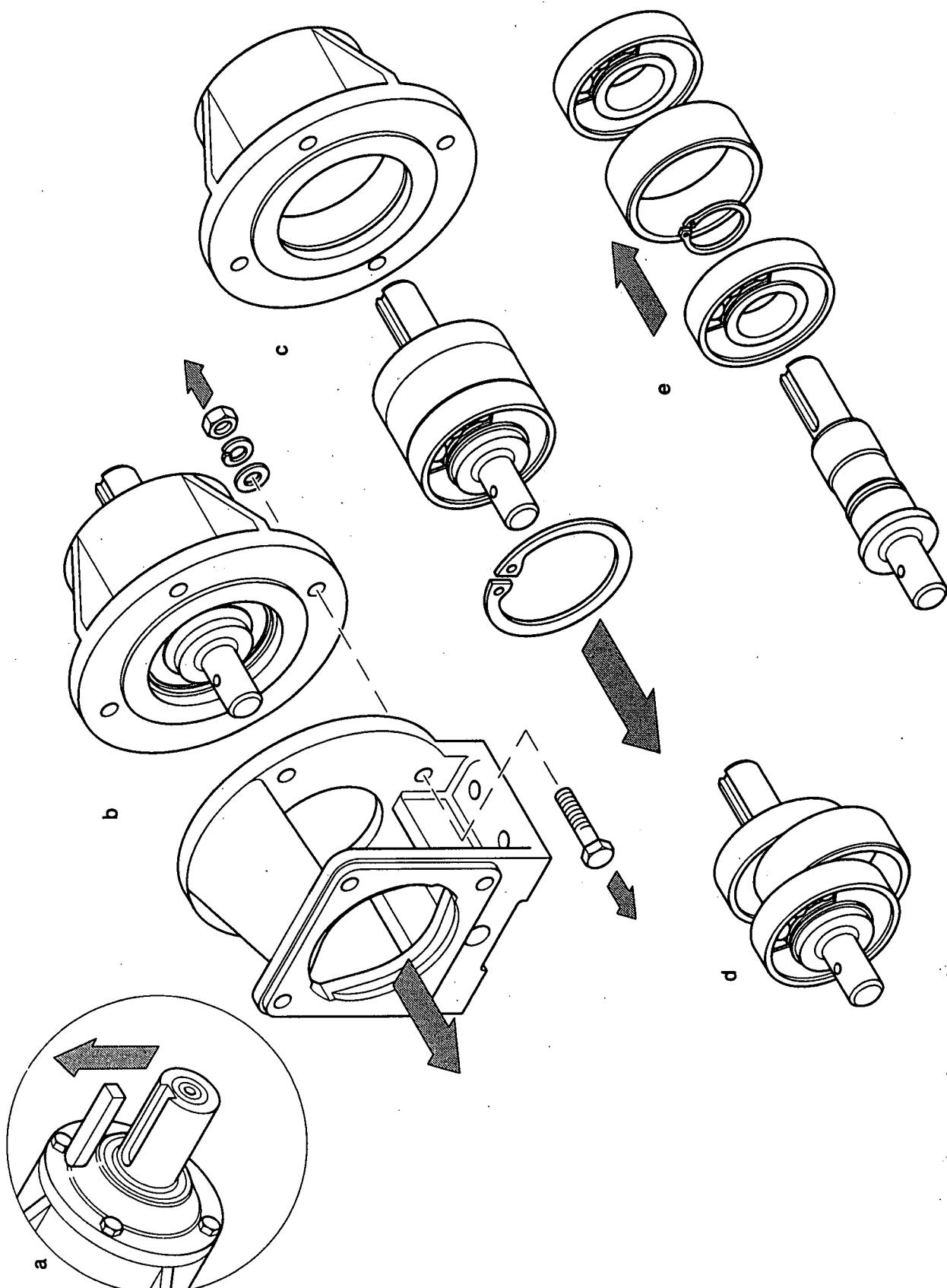
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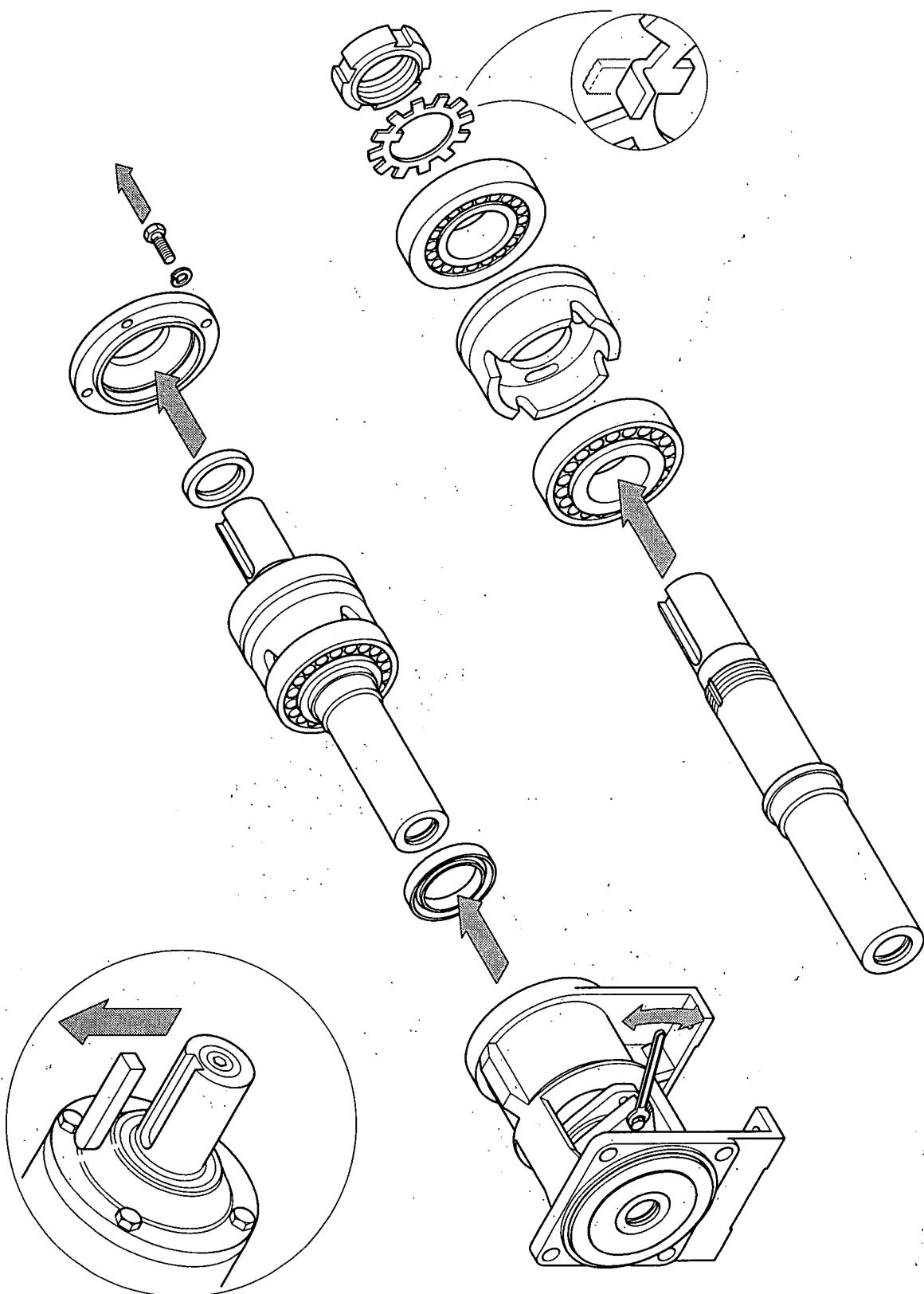
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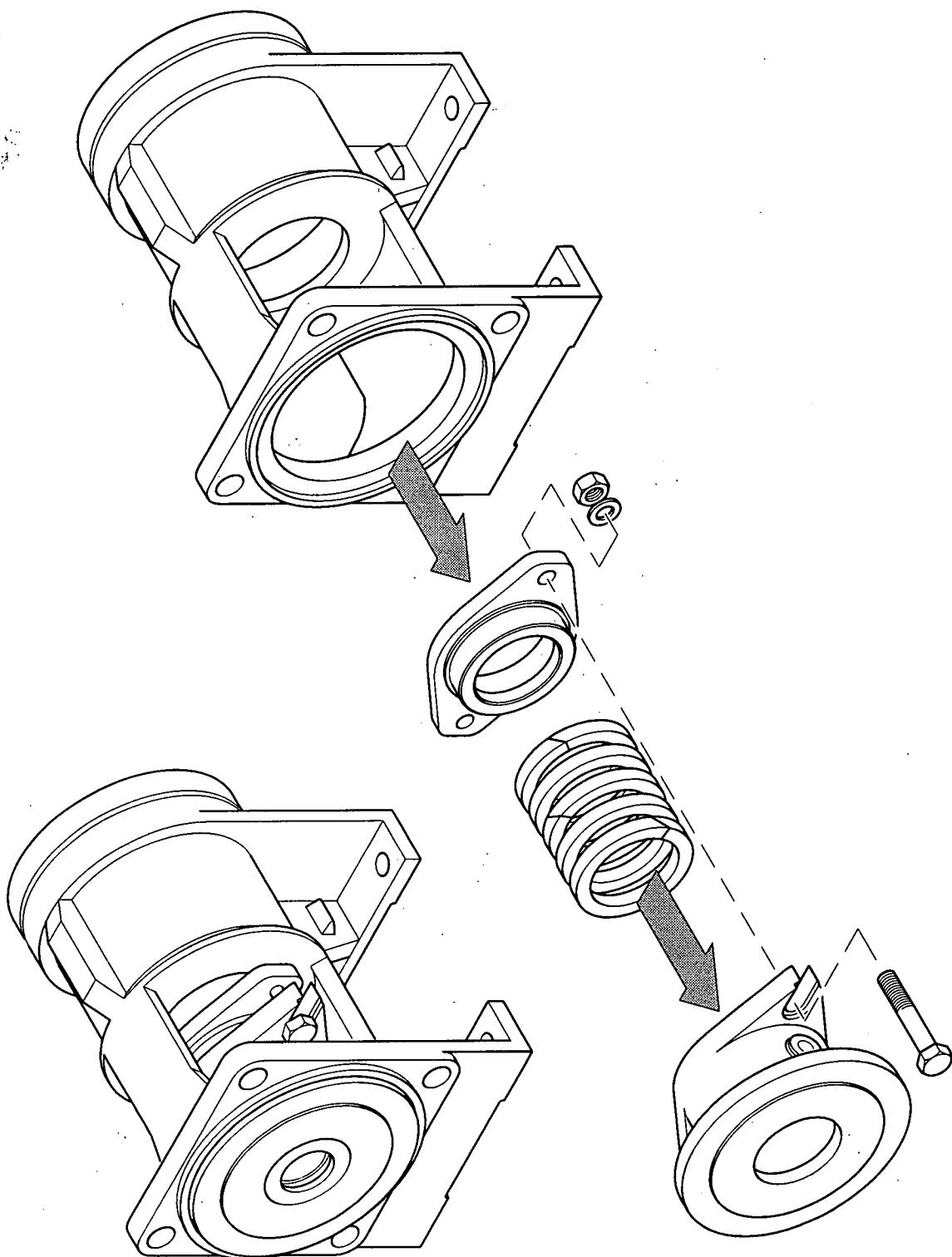


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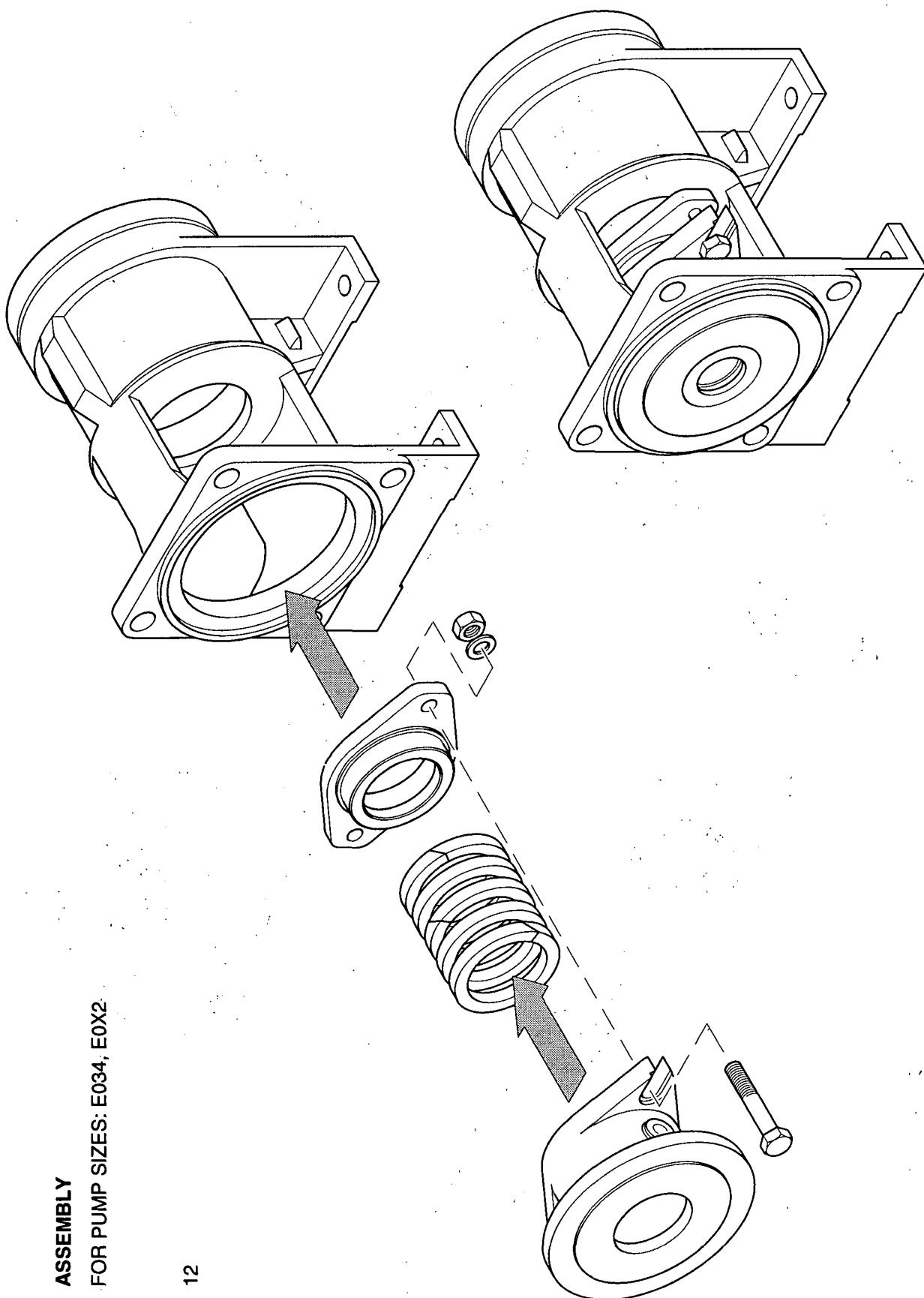
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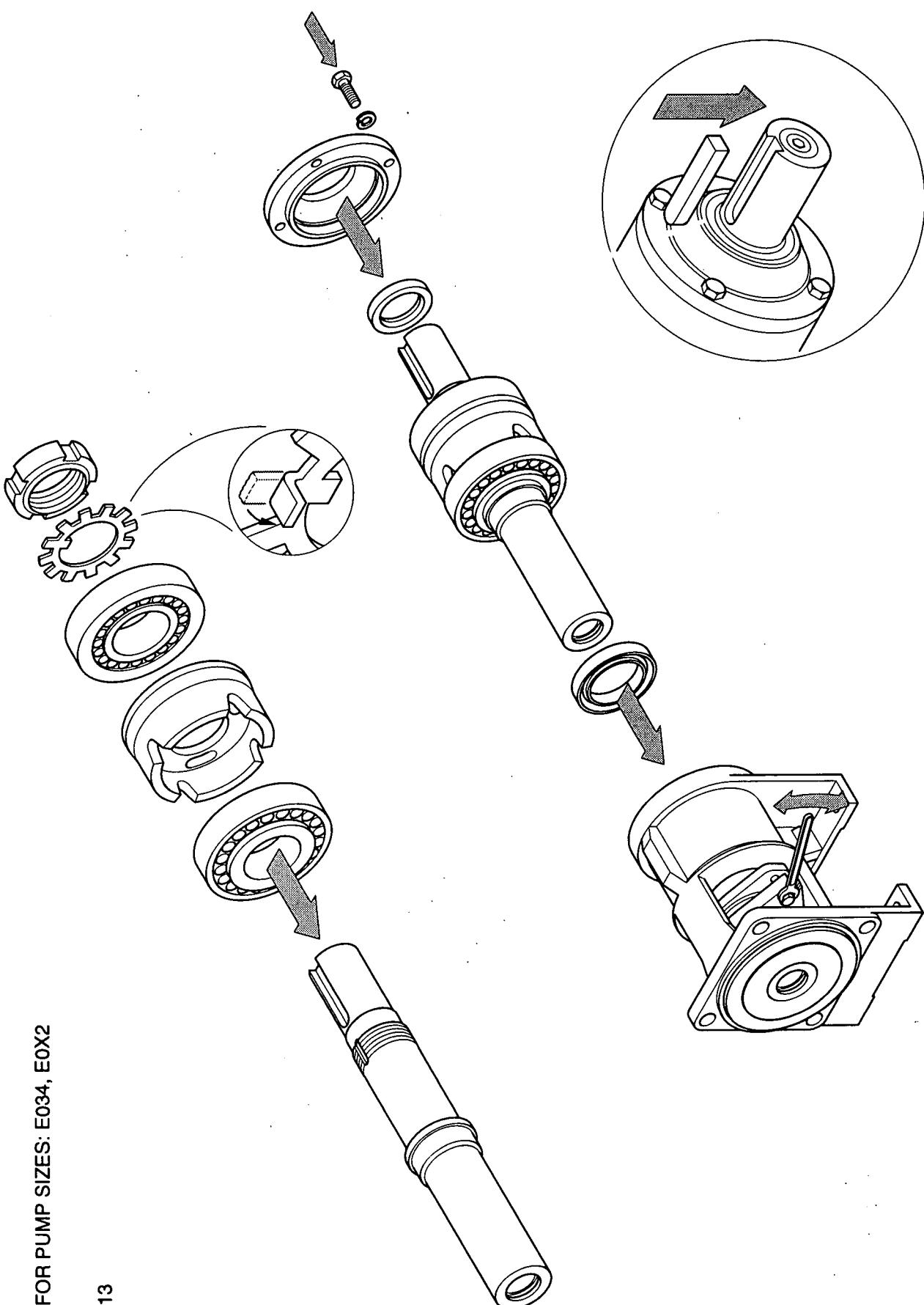
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**ASSEMBLY**

FOR PUMP SIZES: E034, E0X2

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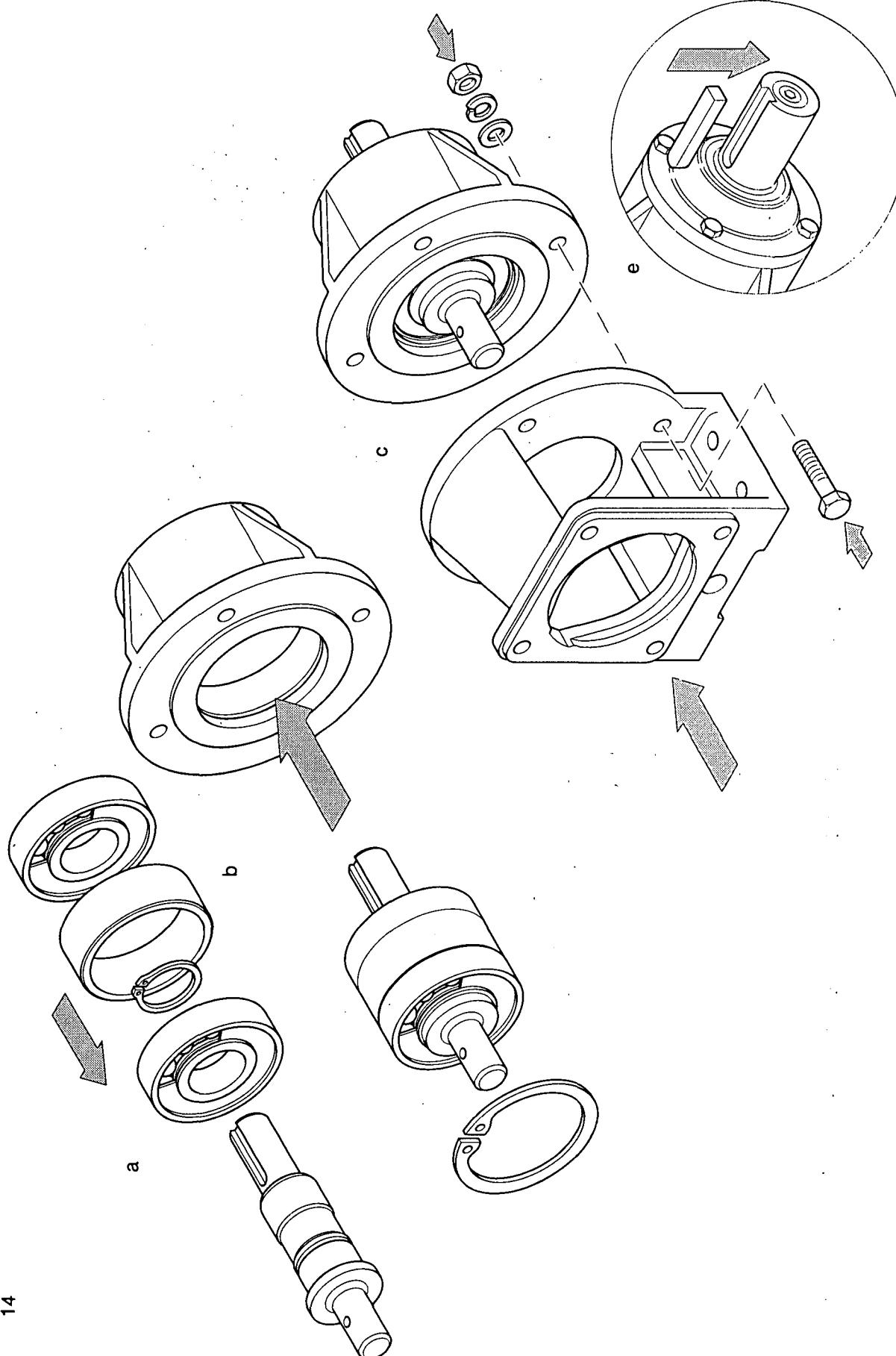
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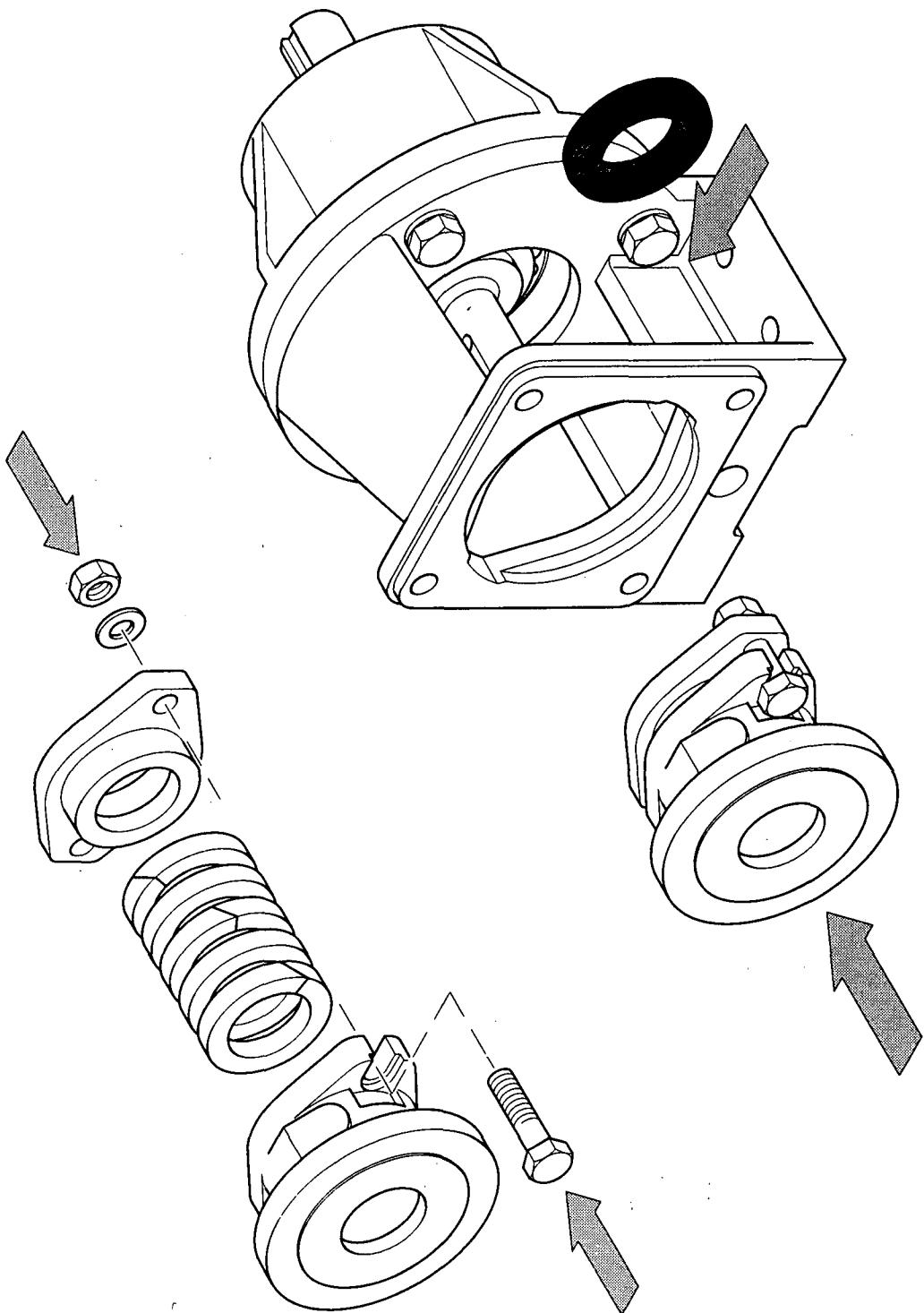
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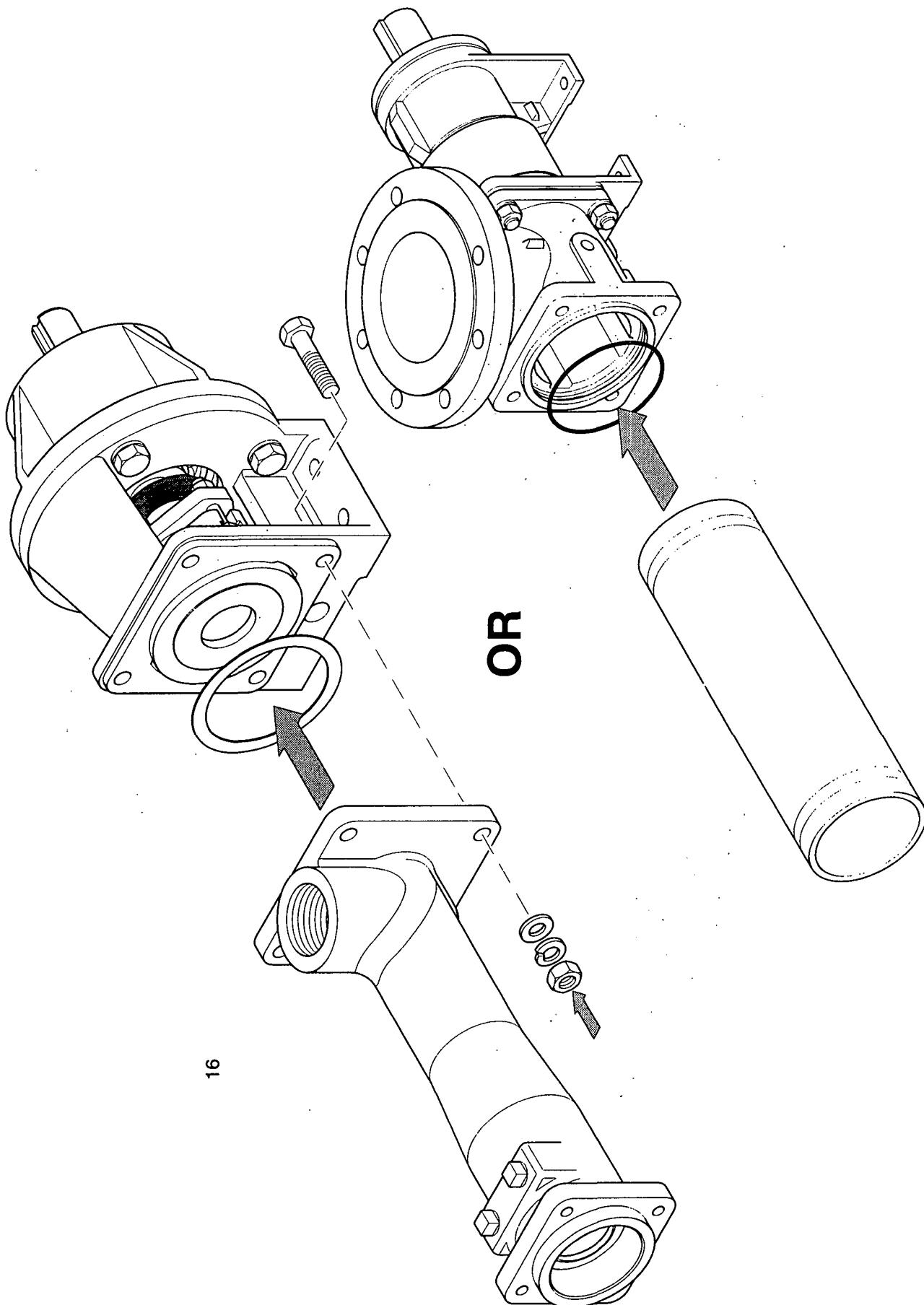
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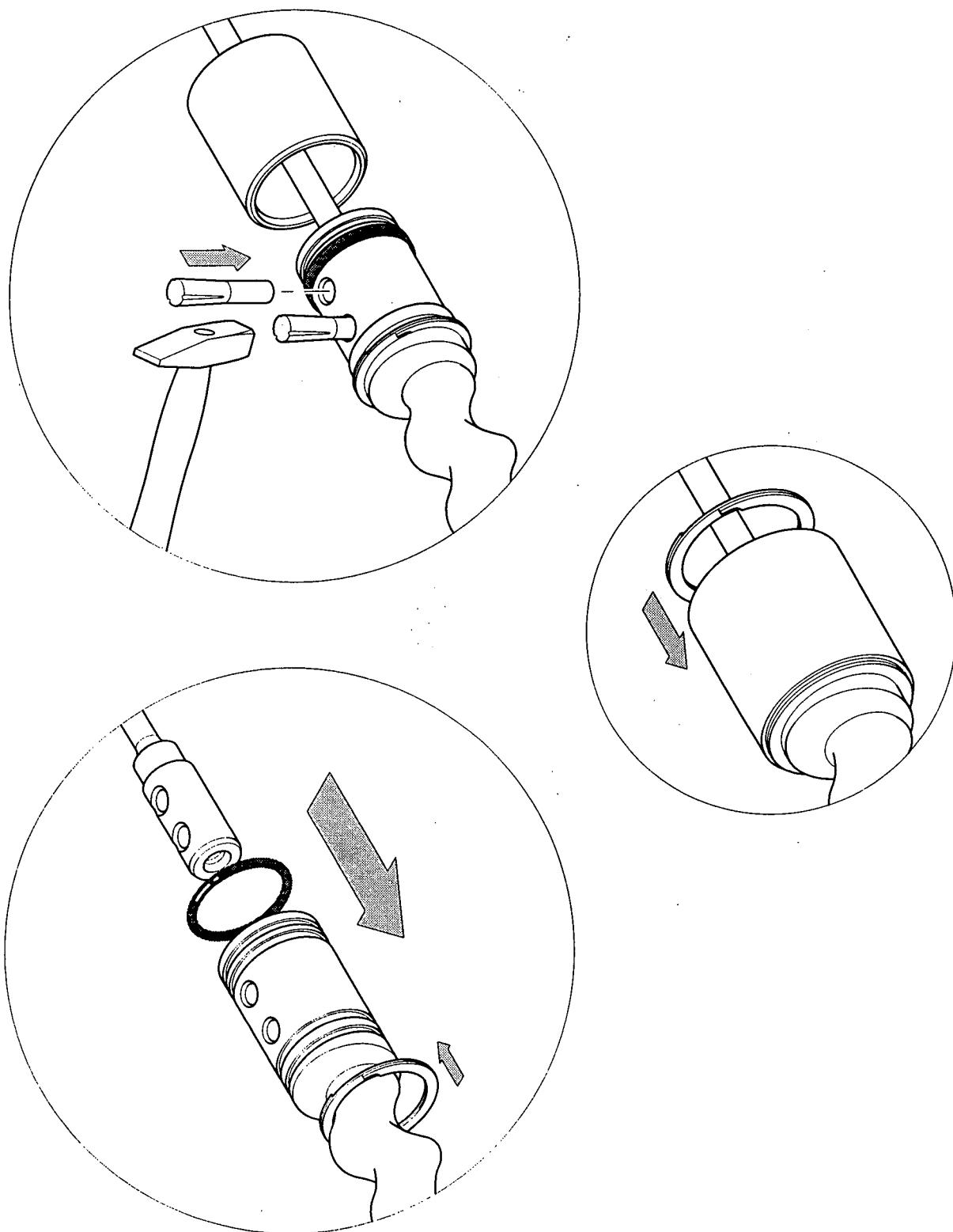
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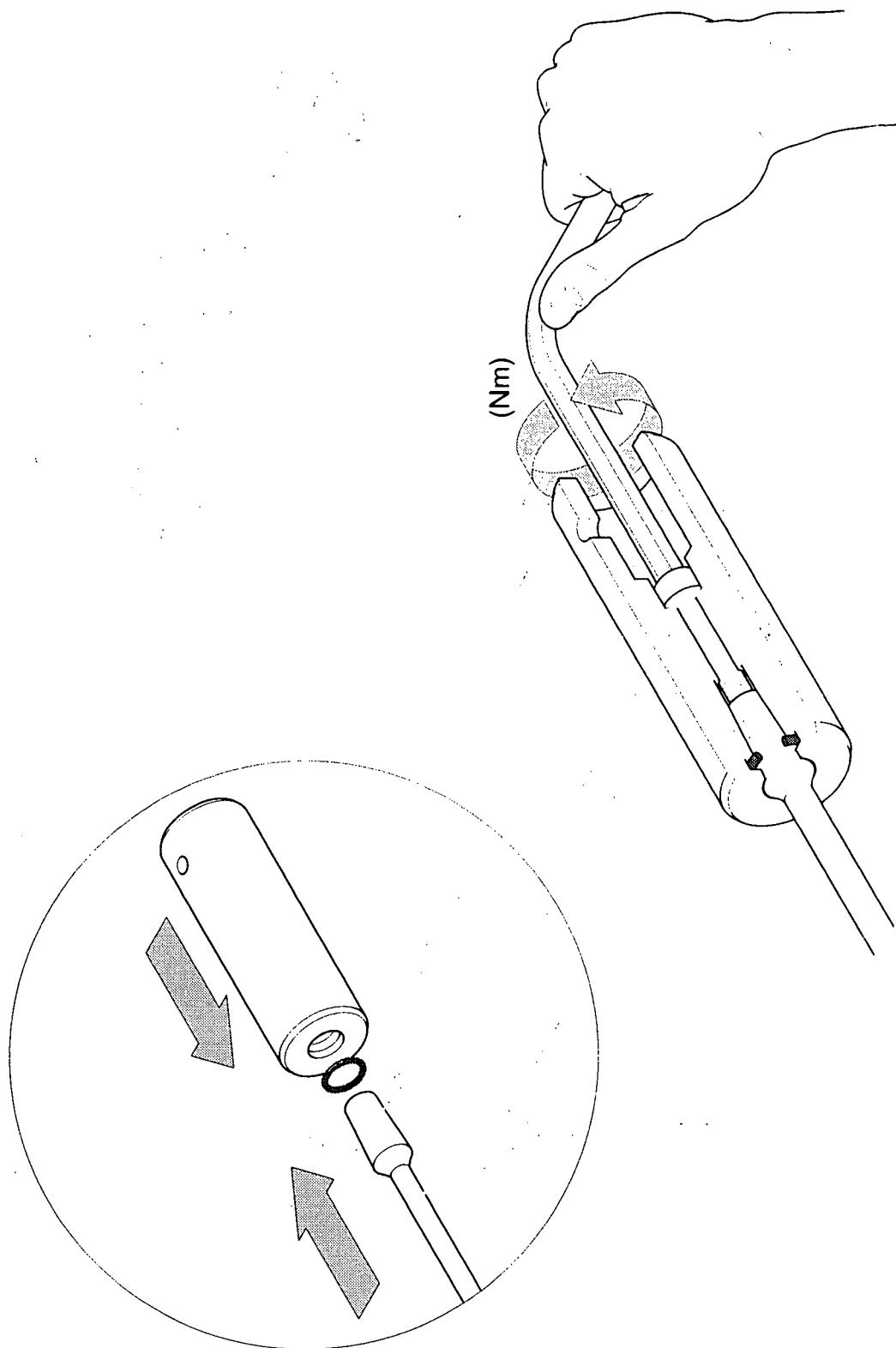
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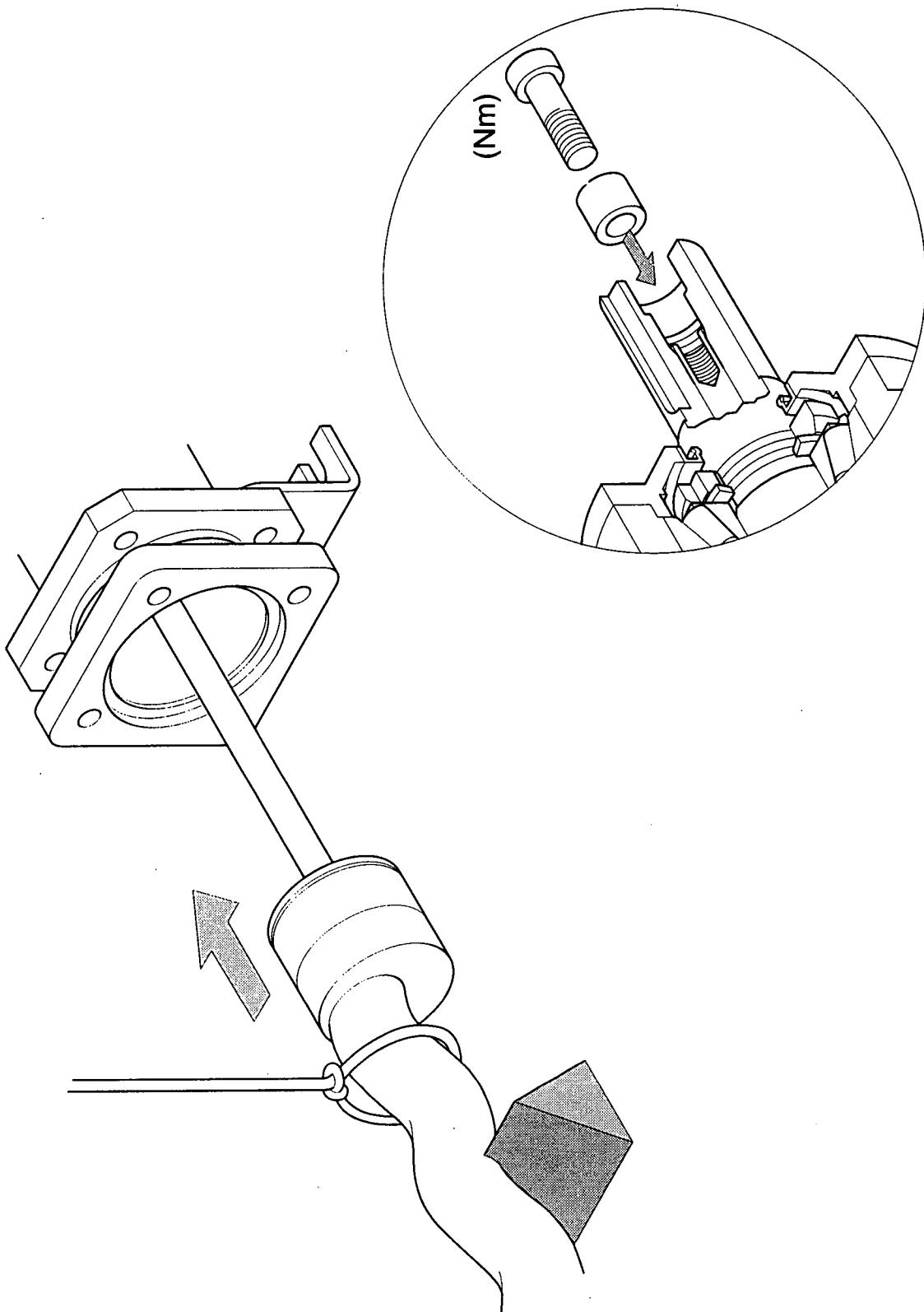
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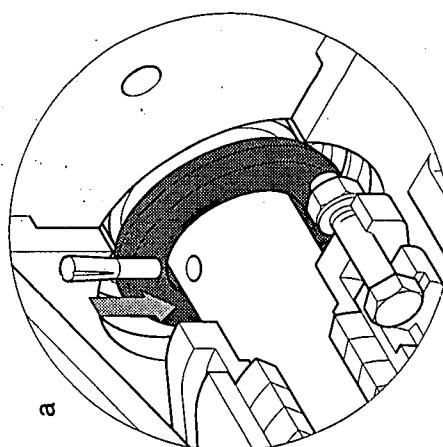
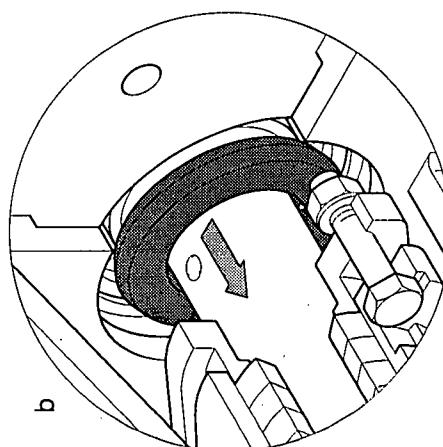
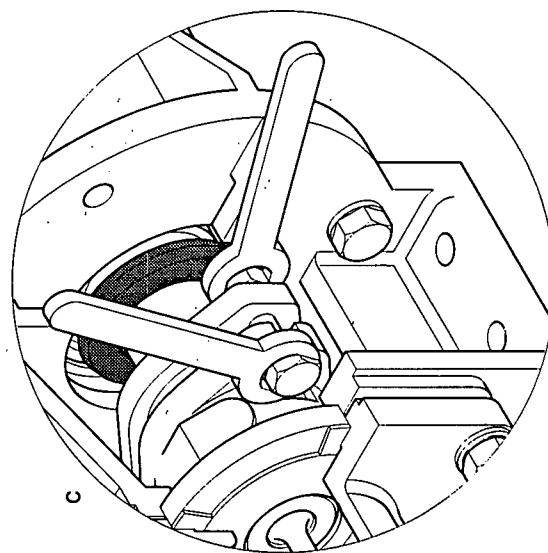
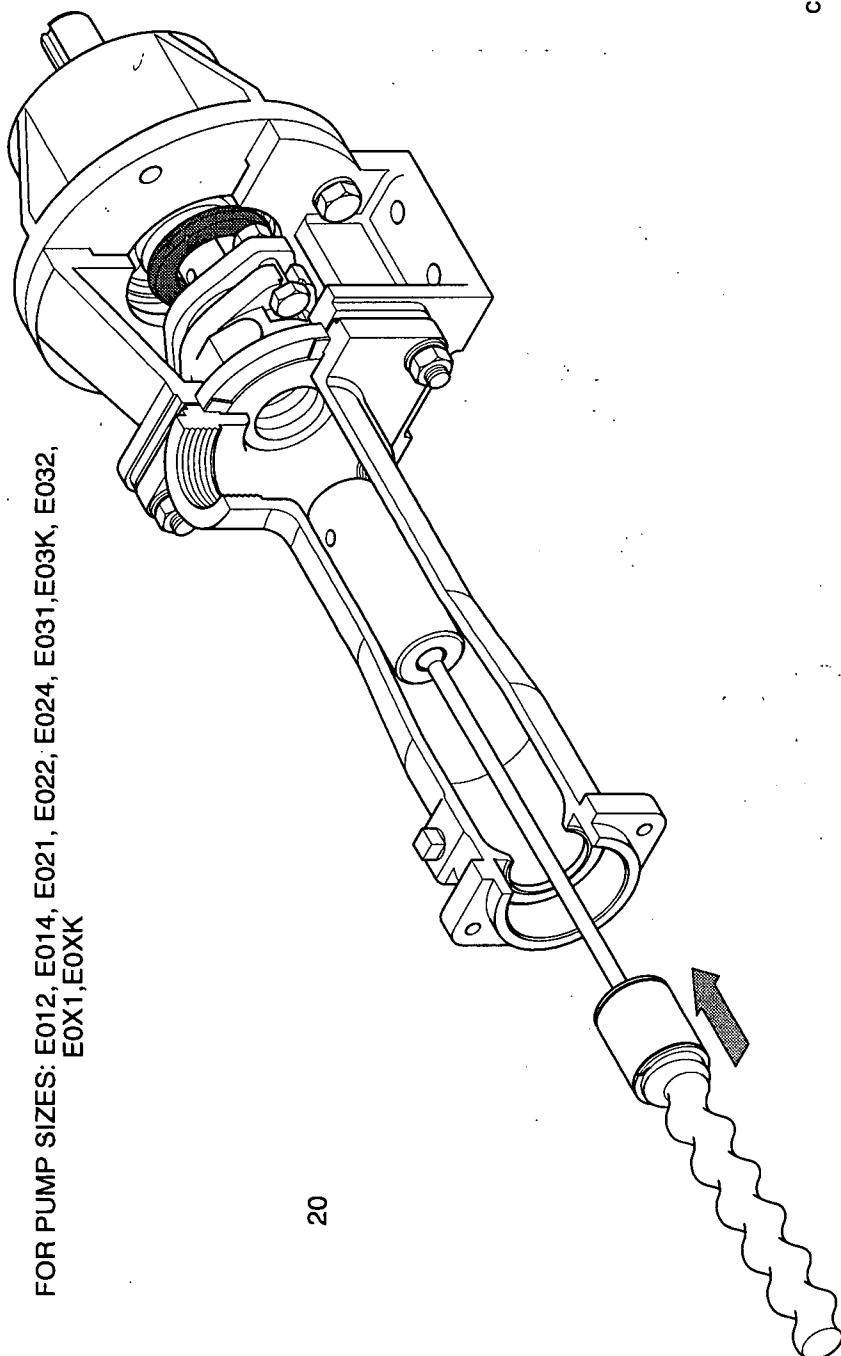
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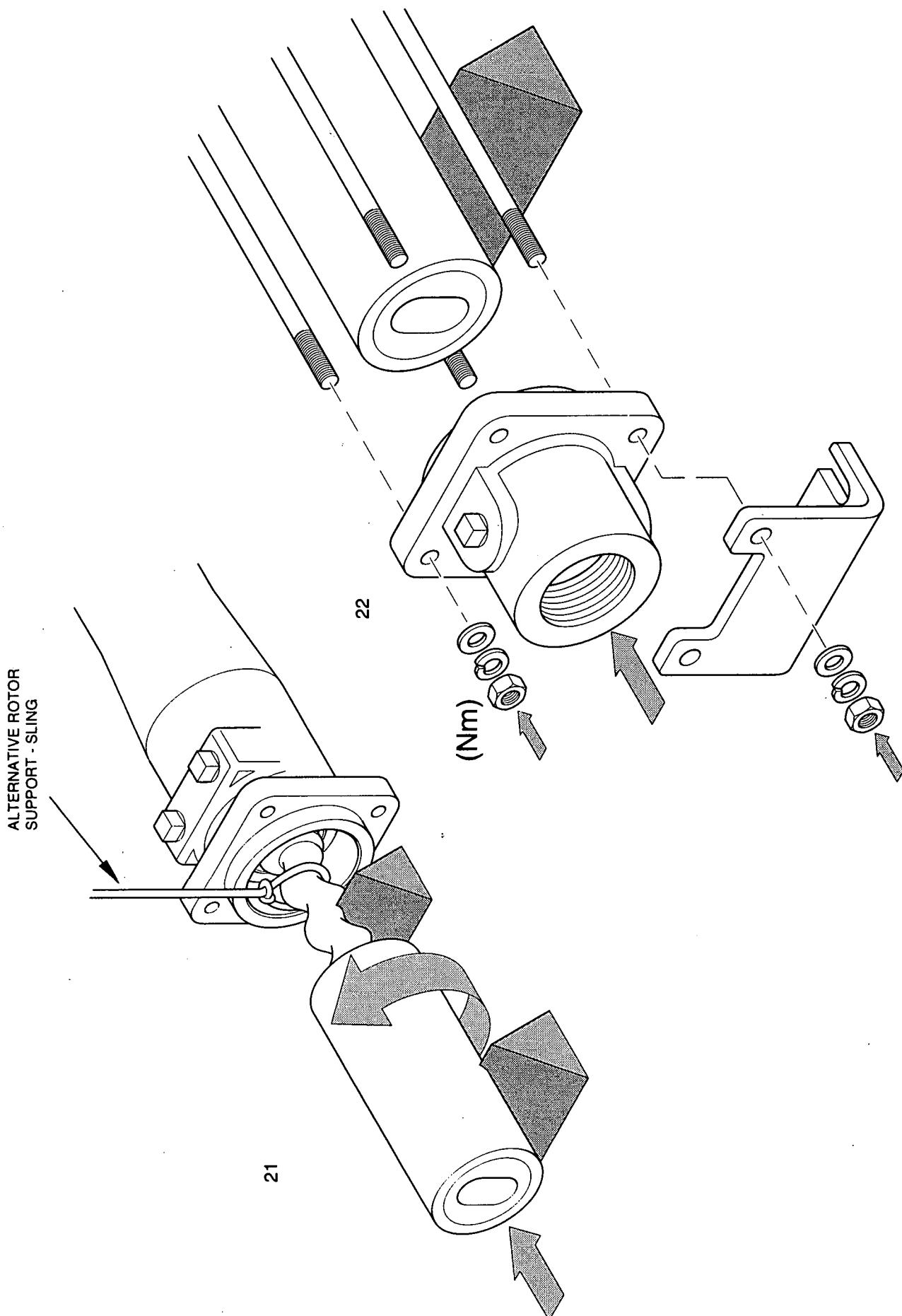
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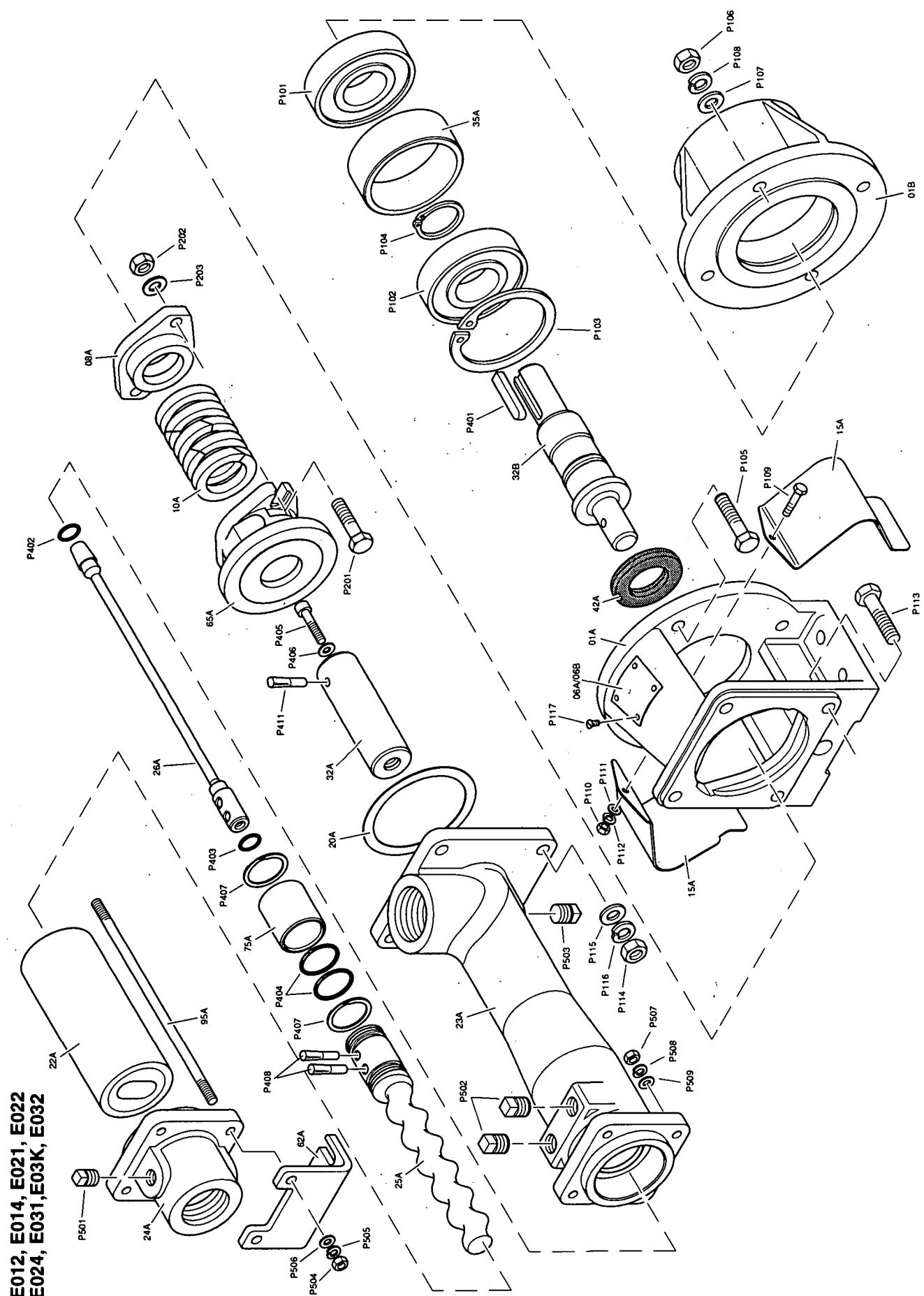
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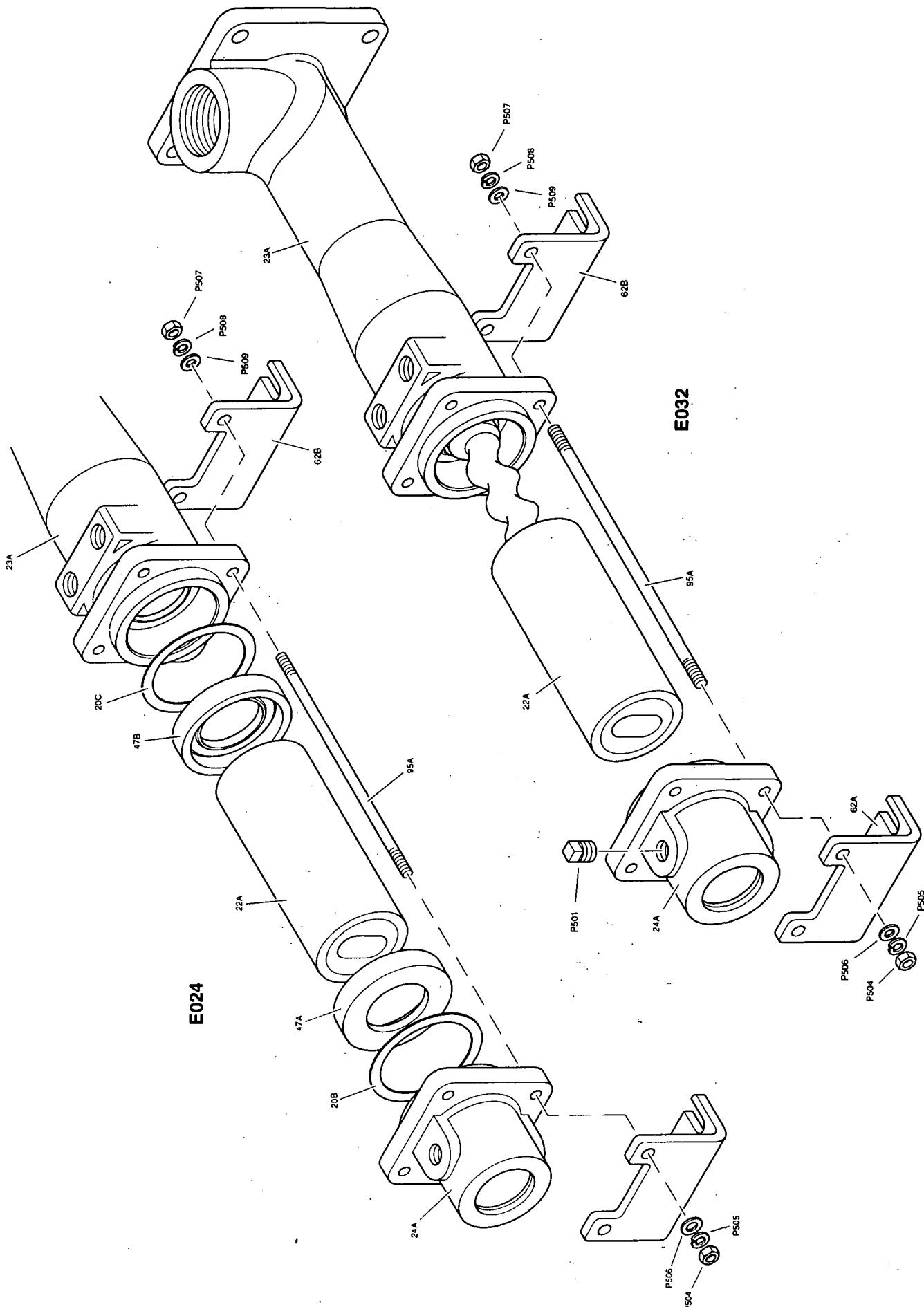
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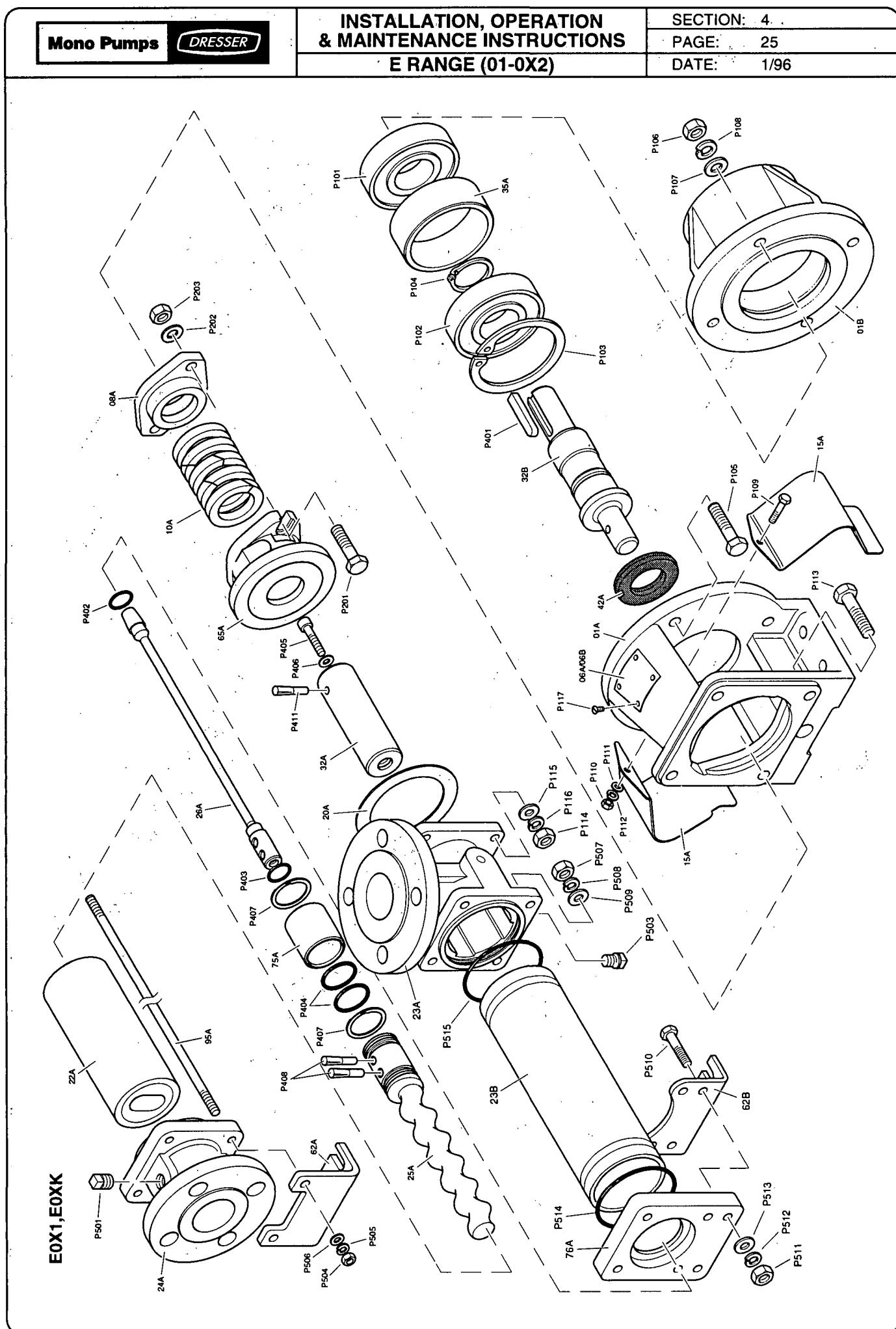
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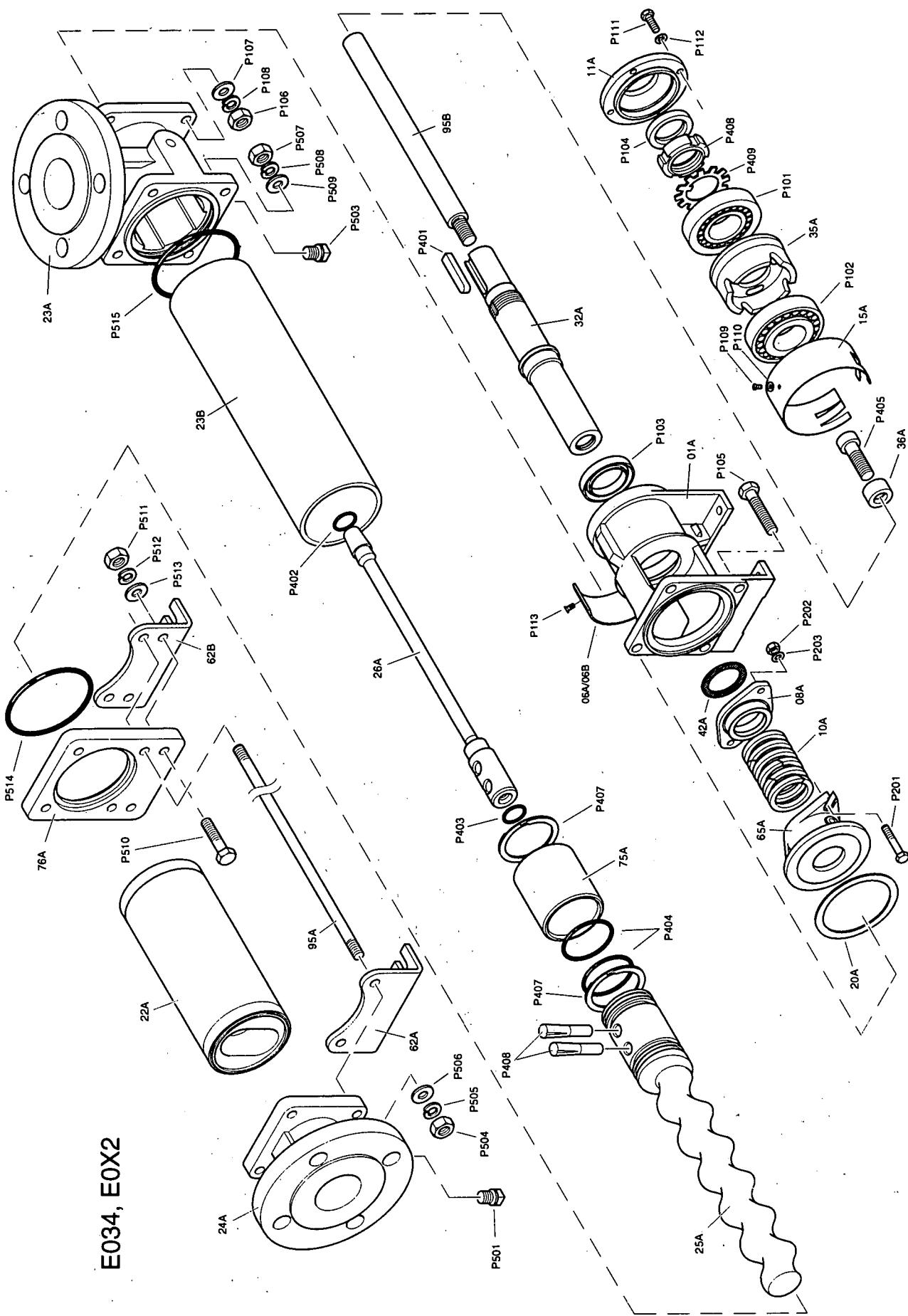
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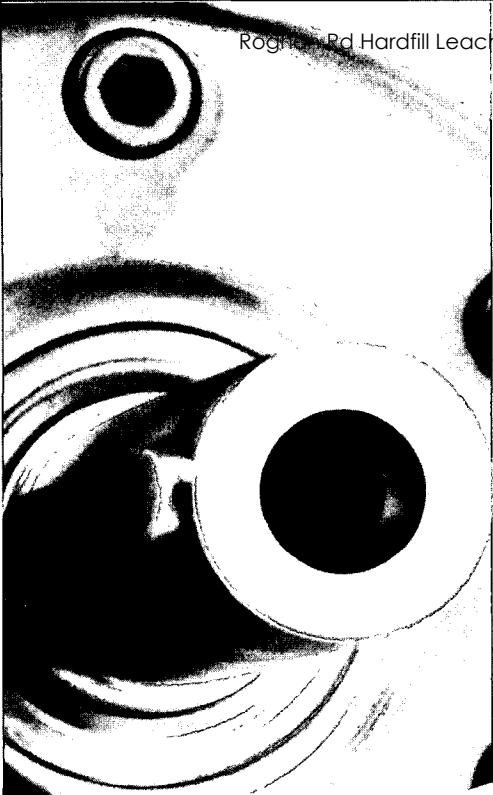


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E RANGE 01 - 0X2	TORQUE TIGHTENING TABLE FOR FASTENERS		

PUMP SIZE	SUCTION CHAMBER/ SUCTION EXT.		STATOR TIE BAR Nm	BEARING COVER Nm		DRIVE END FLEXISHAFT CAP SCREW Nm P405	DRIVE END SHAFT TIEBAR CAPSCREW Nm P405
	P106	P114		P111	P106		
E012	-	10	4	-	10	15	-
E014	-	10	4	-	10	15	-
E021	-	10	4	-	10	15	-
E022	-	10	4	-	10	15	-
E024	-	10	4	-	10	15	-
E031	-	10	4	-	10	15	-
E03K	-	10	4	-	10	15	-
E032	-	10	4	-	10	15	-
E034	13	-	10	10	-	-	15
E0X1	-	10	10	-	10	15	-
E0XK	-	10	10	-	10	15	-
E0X2	10	-	10	10	-	-	15

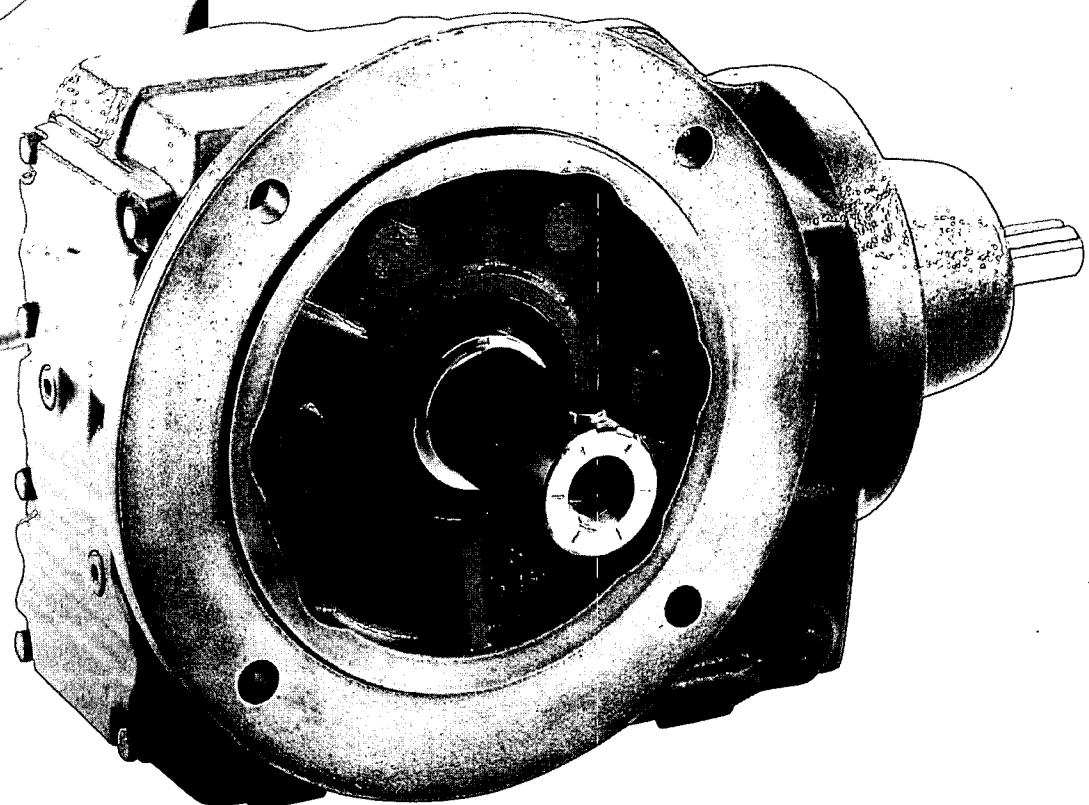
Note: Torque tolerances are +/- 5% of stated nominal figures.



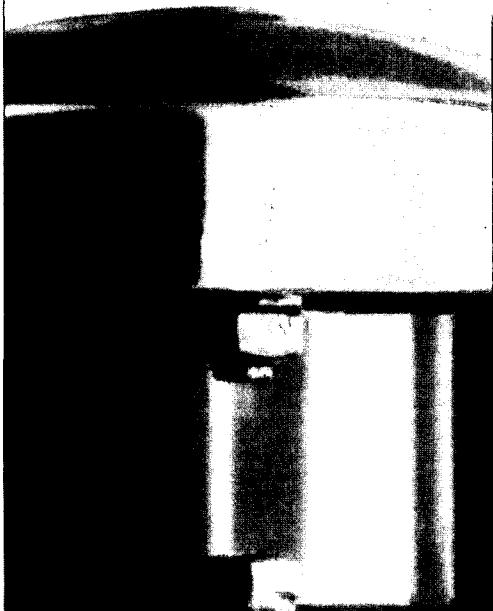
Gear Units

R, F..7, K..7, S and Spiroplan® Types Installation, Commissioning and Maintenance Instructions

Edition 07/96



03/039/95



0922 8012 / 0197



Active 29/01/2014

SEW EURODRIVE

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Safety Instructions

- Be careful never to operate damaged products !
- Read these operating instructions carefully before beginning set-up and installation.
- Always follow the relevant safety instructions. They are indicated as follows:



Electrical hazard, e.g. working with live voltages.



Mechanical hazard, e.g. when working on hoists.



Important instructions for safe and fault-free operation,
e.g. pre-setting before commissioning.

WARNING:



Live voltages and moving parts of electrical machines can cause serious or fatal injuries.

Installation, connection, commissioning, maintenance and repair work may only be carried out by qualified staff taking into account

- **these instructions**
- **all other instructions for commissioning, project planning and wiring diagrams relating to the drive**
- **current national/regional regulations
(e.g. regarding safety/accident prevention)**

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Preliminary Remarks

Preliminary remarks (guarantee, storage, disposal, etc.)

- **A requirement of fault-free operation and fulfilment of any rights to claim under guarantee is that these instructions and remarks are followed.**
- Each gear unit is manufactured and tested to current SEW-EURODRIVE technical specifications. Products are subject to alterations of technical data and designs made in respect of further technical progress.
- Check the delivery for possible damage which may have occurred during transportation as soon as you receive it. Immediately inform the carrier of any damage.
- If the gear unit is not being installed immediately, store it in a dry, dustfree room.
- **Disposal (please observe current local regulations !)**
 - Parts of the housing, gear wheels, shafts, anti-friction bearings are to be disposed of as steel scrap. The same applies to parts made of grey cast iron unless special processing is locally required.
 - Worm wheels are partly made of non-ferrous heavy metal and are to be disposed of accordingly.
 - Waste oil is to be collected and disposed of in accordance with the applicable environmental regulations.

Note

In these instructions, cross-references are indicated with a →
("→ section x.x" means: further information can be found in section x.x)



1. Installation

1.1 Before you start

The drive may only be installed if

- the details on the nameplate of the drive correspond with the power mains;
- the drive is not damaged (no damage has occurred during transportation or storage);
- the following conditions are met:
 - for standard gear units: ambient temperature between 0 °C and +40 °C,
no oils, acids, gases, vapours, radiation, etc.
 - for special design units: drive design to suit specific ambient conditions
- with Spiroplan® gear units: no large external inertia moments are present, which could retrodrive load the gear unit (self-locking); no requirement for interlocking shaft keyway connection



1.2 Preparatory work

All anti-corrosion agents shall be carefully removed from output shafts and flange surfaces using standard solvent. Make sure to protect sealing lips of oil seals against contact with solvent (solvent will cause damage to the material) !

Gear units for "long-term storage"

- if filled with mineral oil these gear units come provided with a ready-for-service oil filling to suit their respective mounting position. Check the oil level in any case before commissioning (→ section 3.3.1).
- if filled with synthetic oil these gear units come with a slightly increased oil level. Correct the oil level before commissioning (section → 3.3.1).

1.3 Installing the gear unit

The gear unit or geared motor may only be installed/mounted on a level¹, vibration-damping, torsionally rigid support structure in the specified mounting position (Spiroplan® gear units are mounting position dependent). Do not twist housing feet and mounting flanges against each other !

All oil level plugs, oil drain plugs and breather plugs must be freely accessible !

If necessary, use intermediate plastic shims (thickness 2-3 mm) to eliminate risk of electrochemical corrosion between gear unit and driven machine (bonding of two different metals such as cast iron/stainless steel) ! Also use plastic washers for screws. In addition, earth the housing – use the earthing screws on the motor.



1.3.1 R, F, K and S gear units: Replacing the screw plug

Before the unit is started, the screw plug is to be removed and replaced by the supplied breather plug or vent valve ! The screw plug is identified by a plastic cap and might be painted over (location → appendix mounting positions).



On this occasion also check whether the oil filling is in accordance with the specified mounting position (→ section 3.3.1).

1.3.2 Installation in damp locations or in the open air

For use in damp locations or in the open air gear unit versions are supplied with corrosion protection. Possible damage to the paint work (e.g. at breather plugs/vent valve) is to be touched up.

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¹⁾ Maximum permissible deviation from plane for flange mounting (reference values as per DIN ISO 1101):
for flange diameters 120 ... 160 mm max. deviation 0.2 ... 0.5 mm

2 Installation / Commissioning

2. Installation / commissioning

2.1 Before you start

Tools/resources required

- set of spanners
- torque spanner (for shrink discs)
- mounting jig
- any spacers (washers, spacer rings), fixing material for input/output elements
- anti-seize (e.g. Optimol White T)

Assembly procedure tolerances

During the assembly procedure, observe the tolerances at:

- shaft ends:
diameter tolerance as per DIN 748
 - ISO k6 on solid shaft with $d, d_1 \leq 50$ mm
 - ISO m6 on solid shaft with $d, d_1 > 50$ mm
 - ISO H7 on hollow shaft
- centre bore as per DIN 332, Form D
- Flanges:
centering shoulder tolerances as per DIN 42948
 - ISO j6 with $b_1 \leq 230$ mm
 - ISO j6 with $b_1 > 230$ mm

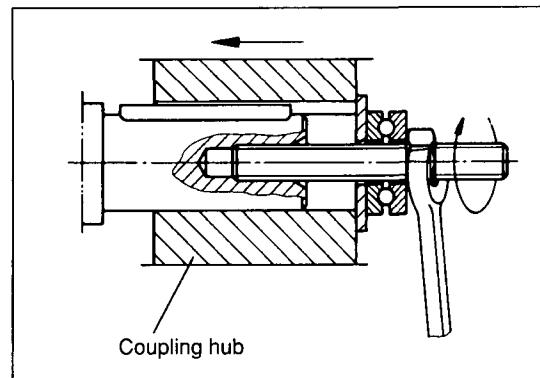


Fig. 1

Example of a mounting jig for mounting of couplings or hubs on gear unit or motor shaft ends. In some cases the thrust bearing at the mounting jig may be done without

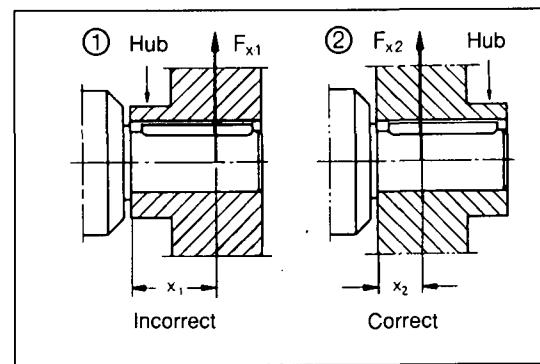


Fig. 2

Correct mounting arrangement ② of a gear or chain wheel to avoid inadmissibly high overhung loads

2.2 Gear units with solid shaft

2.2.1 Installing input and output elements

Always use a mounting jig to install input and output elements (Fig.1). Use the tapped centre hole at the end of the shaft for attaching.

Belt pulleys, couplings, pinions etc. may not on any account be hammered onto the output shaft as this may cause damage to bearings, housing and shaft!

Fitted transmission elements should be balanced and dimensioned in such a way that no inadmissible radial forces or axial thrust loads occur (Fig. 2; permissible values → "Geared Motors" catalogue).

Note:

You can make installation easier by using anti-seize (applied to the output element) or preheating the output element (to 80-100 °C).

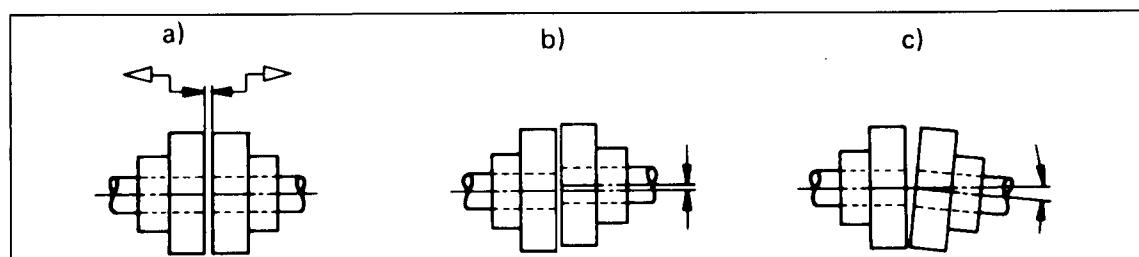


Fig. 3

When mounting couplings compensate: a) maximum and minimum clearance b) axial offset c) angular offset

2.3 Shaft-mounted helical gear units

2.3.1 "Hollow shaft with keyway or splining" design

Assembly and disassembly are made easier if you

- use a mounting jig (→ "Geared Motors" catalogue, design notes on the assembly/disassembly for shaft-mounted helical gear units)
- protect the hollow shaft against fretting rust by using anti-seize.

Note:

To avoid fretting rust, machine the solid shaft of the driven machine between two facing surfaces! (→ "Geared Motors" catalogue, design references for assembly/disassembly of shaft-mounted helical gear units)

2.3.2 F, K and S gear units: "Smooth hollow shaft with shrink disc" version

Do not tighten clamping bolts without the shaft being installed otherwise the hub may deform !



2.3.2.1 Mounting the shrink disc (Fig.4)

1. Remove spacers between outer rings (if installed).
2. Hollow shaft bore and input shaft of driven machine
 - Carefully degrease mating surfaces.
3. Mount shaft or slide shaft-mounted gear onto shaft
4. Tighten clamping bolts (repeatedly)
 - subsequently (not in a diagonally opposite sequence !)
 - with equal tightening torque (see table)
 - make sure outer rings are plane parallel, do not fit askew
 - recommended tightening angle: 30 – 60 ° turn of the bolt
5. Check tightening torque.
Observe deviations for special versions.

Screws	Tightening torques Ma [Nm]
M5	5
M6	12
M8	29
M10	58
M12	100
M16	240
M20	470
M24	820
M27	1100
M30	1640

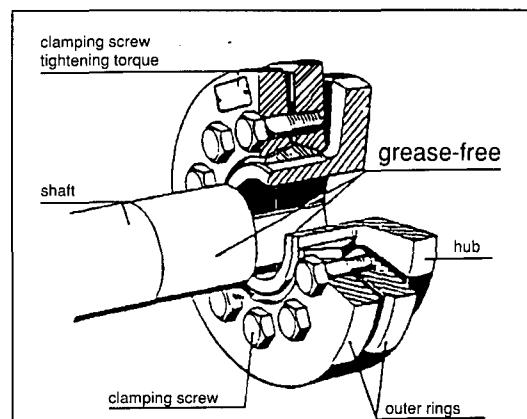


Fig. 4

2 Installation / Commissioning

2.3.3 Mounting torque arms

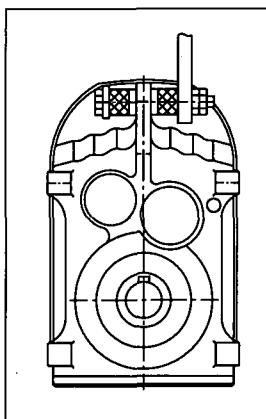


Fig. 5

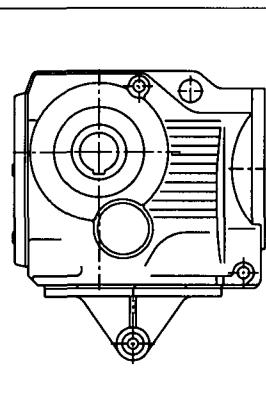


Fig. 6 B side connection is mirrored to that of A mounting

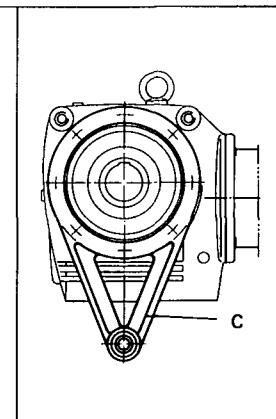
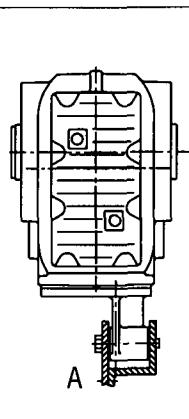


Fig. 7

Make sure not to twist torque arms when mounting them !

1. Mount torque arms:

- shaft mounted helical gear units as shown in Fig. 5
- helical-bevel gear units as shown in Fig. 6
(support the bushing on both sides as shown)
- with Spiroplan® and helical-worm gear units as shown in Fig.7.
(support the bushing on both sides as shown)

2.4 Commissioning Spiroplan® and helical-worm gear units

Helical-worm gear units and Spiroplan® gear units require a run-in period of at least 24 hours in order to achieve their maximum efficiency. If the helical-worm gear unit is operated in both directions, each direction of rotation requires its own run-in time. The adjacent table lists the average power reductions during the run-in period.

	Power reduction in % no. threads per unit length					
	1	2	3	4	5	6
Helical worm gear units	12	6	3	–	3	2
Spiroplan® gear units	15	10	–	8	5	–

3. Inspection / Maintenance

3.1 Inspection and maintenance intervals

Time interval	What needs to be done ?	→ Section
Every 3000 machine hours at least every six months	Check oil	3.3.1
Depending on operating conditions (see diagram) minimum every three years	Change mineral oil	3.3.2
Depending on operating conditions (see diagram) minimum every 5 years	Change synthetic oil	3.3.2
R, RF 32 and Spiroplan® gear units are lifetime lubricated and therefore maintenance-free		

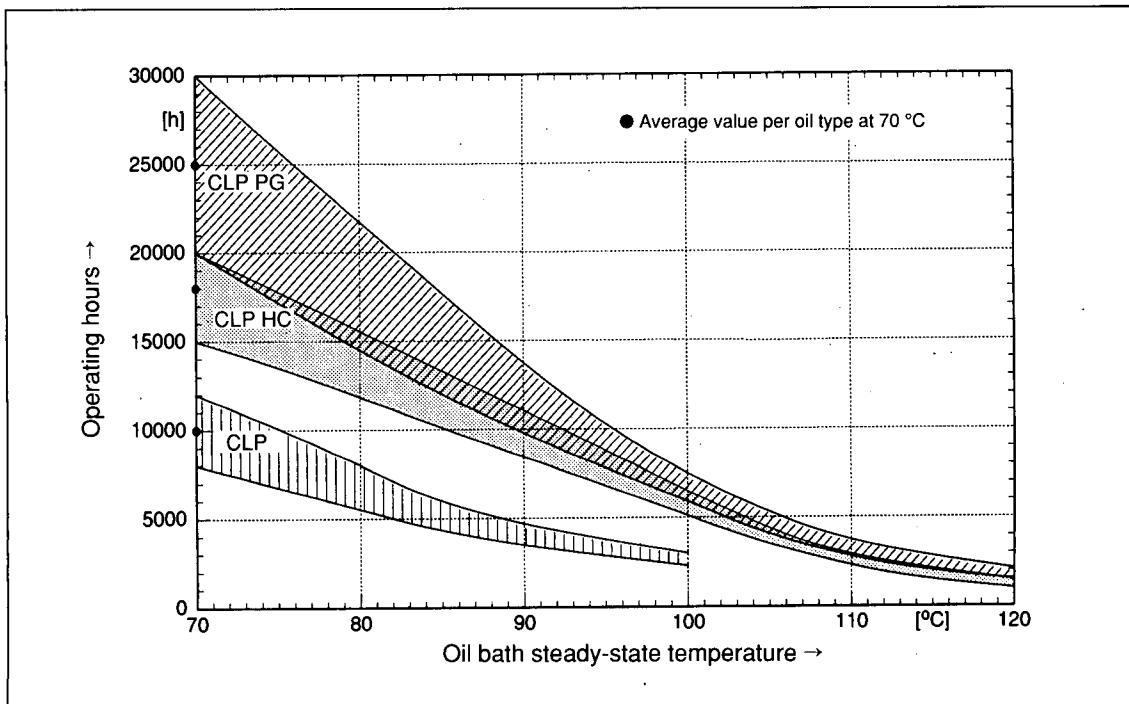


Fig. 8

Oil change intervals for standard gear units operated under normal service conditions.

Special gear unit designs operating under severe conditions/in aggressive environments require more frequent oil changes!

3.2 Before you start

Tools/resources required

- set of spanners

3.3 Installation/maintenance work

Be careful not to mix different synthetic lubricants and do not mix synthetic and mineral lubricants either! The standard lubricant used is oil (→ appendix).

3.3.1 Oil check



1. Remove power from the drive,
insure against unintentional power up!
Wait, until the gear unit is cooled – burn hazard!
2. Check the oil sample (colour, consistency)
– if oil sample is polluted, change oil (→ 3.3.2)
3. Gear units with oil level plug:
– Remove oil level plug,
– check oil level and correct if necessary,
– replace oil level plug.

3.3.2 Oil change

Make sure the gear unit is at its operating temperature when changing the oil, as the oil's reduced viscosity when cold will make draining more difficult.



1. Remove power from the drive,
insure against unintentional power up!
Wait, until the gear unit is cooled – burn hazard!
- Note:** Gear unit must remain warm however, as insufficient flowability from under cooling makes it difficult to drain the oil.
2. Remove oil level plug, breather plug/vent valve and oil drain plug.
 3. Drain oil completely.
 4. Screw in oil drain plug.
 5. Fill in new oil through breather hole.
– oil quantity in accordance with mounting position (→ appendix)
– check oil level at level plug.
 6. Screw in oil level plug.
 7. Screw in breather plug/vent valve.

4. What to do if...

Problem	Possible cause	Solution
Unusual <u>consistent</u> running noise	a) <u>Rolling/grinding noise</u> bearing damage b) <u>Knocking noise:</u> gearing irregularity	1. Check oil → section 3.3.1 2. Call customer service
Unusual <u>inconsistent</u> running noise	Polluted oil or not enough oil	Check oil → section 3.3.1
Oil is leaking – at motor flange – at motor oil seal – at gear unit flange – at output side oil seal	Defective seal	Call customer service
Oil is leaking at breather plug	a) Excessive amount of oil b) Breather plug installed incorrectly c) Frequent cold start (oil is foaming) and/or high oil level	a) Correct oil level → section 3.3.1 b) Install breather plug correctly → appendix (mounting position) c) Exchange breather plug for vent valve
Output shaft does not rotate when motor rotates	Disruption of shaft keyway connection in gear unit	Send geared motor for repair

Note:

Should you require assistance from our Customer Service Department:

- specify the nameplate data
- specify the type and extent of the fault
- specify when and under what circumstances the fault occurred
- specify the suspected cause



Lubrication table for SEW drives

01 805 32E

Appli- cation	At ambient temperature				Lubricant type DIN (ISO)	ISO viscos- ity resp. NLGI class									wintershall
	-50	0°C	+50	+100											
-25			+80		CLP PG	VG 220	Aral Degol GS 220	BP Energyn SG-XP 220		Mobil Glycole 30	Shell Tivela	Klübersynth GH 6-220	Tribol 800/220		
0		+40			CLP (CC)	VG 220	Aral Degol BG 220	BP Energol GR-XP 220	SPARTAN EP 220	Mobilgear 630	Shell Omala Oil 220	Klüberoil GEM 1-220	Tribol 1100/220	Wintershall Ersolan 220	
-15	+25				CLP (CC)	VG 150	Aral Degol BG 100	BP Energol GR-XP 100	SPARTAN EP 150	Mobilgear 629	Shell Omala Oil 100	Falcon CLP 150	Klüberoil GEM 1-150	Tribol 1100/100	Wintershall Ersolan 100+150
-30	+10				CLP (CC)	VG 68-46	Aral Degol BG 46	BP Energol GR-XP 68	ESSO ATF D-21611	Mobil D.T.E. 15M	Shell Tellus Oil T 32	Klüberoil GEM 1-68	Tribol 1100/68	Wintershall Ersolan 68	
-45	-20				CLP (HM)	VG 22	BP Energol HLP-HM 10		UNIVIS J 13	Mobil D.T.E. 11M	Shell Tellus Oil T 15	Aircraft Hydraulic Oil 15		Wintershall Wielan HV 15	
0		+60			CLP (PG ¹⁾)	VG 680				Mobil Glycole HE 680		Klübersynth GH 6-680	Tribol 800/680		
0	+40				CLP (CC)	VG 680	Aral Degol BG 680	BP Energol GR-XP 680	SPARTAN EP 680	Mobilgear 636	Shell Omala Oil 680	Falcon CLP 680	Klüberoil GEM 1-680	Tribol 1100/680	Wintershall Ersolan 680
-15	+25				CLP (CC)	VG 220	Aral Degol BG 220	BP Energol GR-XP 220	SPARTAN EP 220	Mobilgear 630	Shell Omala Oil 220	Falcon CLP 220	Klüberoil GEM 1-220	Tribol 1100/220	Wintershall Ersolan 220
-20	+10				CLP (CC)	VG 150	Aral Degol BG 100	BP Energol GR-XP 100	SPARTAN EP 150	Mobil D.T.E. 18M	Shell Omala Oil 100	Klüberoil GEM 1-150	Tribol 1100/100	Wintershall Ersolan 100+150	
-25	+10				CLP (PG ¹⁾)	VG 220				Mobil Glycole 30		Klübersynth GH 6-220	Tribol 800/220		
-45	-20				CLP (HM)	VG 22	BP Energol HLP-HM 10		UNIVIS J 13	Mobil D.T.E. 11M	Shell Tellus Oil T 15	Aircraft Hydraulic Oil 15		Wintershall Wielan HV 15	
-40		+80			CLP-HC	VG 15	VG 220			Mobil SHC 630		Klübersynth GEM 4-220	Tribol 1550/220		
-40	+10				CLP-HC	VG 32				Mobil SHC 624		Klübersynth GEM 4-32	Tribol 1550/32		
-25	+60				DIN 51818	00 2)	Aralub SKA 00	Grease S420		Shell Tivela Compound A		Klübersynth GE 46-1200			
-15	+40				DIN 51818	000 - 0 2)	Aralub MFL 00	BP Energol EP 370	FIBRAX EP 023	Mobilux EP 023	Shell Special-Gear Grease H	Orona FG EP 0	Klüberplex GE 11-680		Wintershall Wielub GFW
-30	+60				DIN 51818	2 - 3	Aralub HL 3	BP Energol LS 3	Exxon BEACON 2	Mobilux EP 2	Shell Alvaria Grease R 3	Gliessando 30	CENTOPLEX 2 EP	Tribol 4020/220-2	Wintershall Wielub LKF 3
-40		+80			DIN 51818	2				Mobiltemp SHC 100					
-25		+80			DIN 51818	3			Unirex N3						
-25	+60				DIN 51818					Shell Alvania Fett R 3					
-45	-25				DIN 51818	2				Aero Shell Grease 16					

■ = Lubricants supplied at the assembly plants SEW USOCOME (France)
■ = Lubricants supplied at the assembly plants SEW EURODRIVE (Germany)

□ = Synthetic lubricants
□ = Mineral lubricants

1) Helical-worm gear units with increased output torques

2) Only for gear units R302, R32 - for other gear units consult SEW-EURODRIVE

**Bauformen
Allgemeines**

SEW

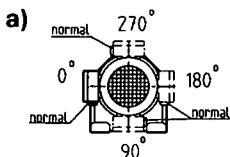
**Mounting Positions
In general**
**Positions de montage
Divers**

Symbol Symbol Légende	Bedeutung Definitions Définition
	Befestigung / Mounting surface / Fixation
	Entlüftung / Breather Plug / Event
	Ölstand / Oil level / Niveau
	Ölablaß / Drain Plug / Vidange
	Ölstand (keine Kontrollschraube vorhanden) / Oil level (no inspection plug provided) / Niveau (sans bouchon de niveau)

Zur genauen Festlegung des Antriebs sind die folgenden Bestellangaben neben der obligatorischen Bauformangabe möglich. Fehlen sie, so werden die Normalausführungen geliefert:

For the precise specification of a drive the following ordering details are possible, in addition to the essential mounting position stipulation. If these are absent, the standard feature is supplied:

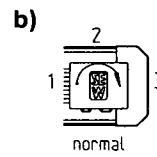
Pour la détermination exacte du réducteur, les données ci-dessous permettent de compléter l'indication obligatoire de la position de montage. En l'absence de ces données, c'est l'exécution normale qui est prise en compte.



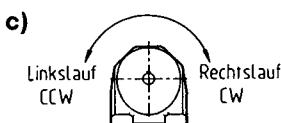
a) **Lage des Klemmenkastens:**
0°, 90°, 180° oder 270°, 0° = Normalausführung
Ausnahme: R32DT63 Lage 90° nicht möglich

b) **Lage der Kableleinführung:**
normal, 1, 2 oder 3.
Ausnahme DT63: nur Lage normal und 2.
Bei Bremsmotoren und Ausführung KS bitte
größere Abmessungen (siehe Maßblatt)
beachten. Bei integriertem Steckverbinde IS kunden-
seits frei wählbar.

a) **Position of the terminal box:**
0°, 90°, 180° or 270°, 0° = normal feature
Exception: R32DT63 position 90° not possible
b) **Position of the cable entry:**
normal 1, 2 or 3.
Exception DT63: only position normal or 2.
On brake motors and feature KS please take the
larger dimensions into account. Please refer
to the dimension sheet. With integrated IS plug-and-
socket connector, can be freely determined by the
customer.



a) **Position de la boîte à bornes:**
0°, 90°, 180° ou 270°, 0° = exécution normale
Sauf R32DT63, position 90° pas possible
b) **Position des entrées de câbles:**
normale 1, 2 ou 3
Exception DT63: uniquement position normale ou 2
Pour les moteurs-frein et l'exécution KS, tenir compte
des dimensions de boîte à bornes plus grandes (voir
feuille de cotés correspondante).
Avec un connecteur IS, le client peut choisir la position
librement.



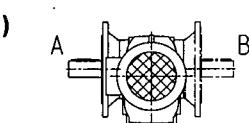
Die folgenden Angaben sind im jeweiligen Fall unbedingt erforderlich:

c) **Drehinn (nur bei Anrieben mit Rücklaufsperrre):**
Rechtslauf oder Linkslauf (auf Abtriebswelle gesehen).
Bei Winkelanrieben mit Angabe, ob auf A oder B gesehen.

d) **Nur bei Winkelantrieben:**
Lage der Abtriebswelle: A, B oder A + B
Lage des Flansches: A, B oder A + B
Bei Spiroplan®-Getriebemotoren WF 20 DT.. sind Abtriebswelle **und** Flansch nur in Lage A oder B möglich.
Anschlußseite bei Aufsteckausführung mit Schrumpfscheibe: A oder B.

It is essential to specify the following if appropriate:

c) **Direction of rotation (only if a backstop is required):**
Direction of rotation of the output shaft, viewed end-on, must be specified. For right angular reducers please indicate whether, viewed end-on, from the A or B side.
d) **Only for right angular reducers:**
Output shaft projection: A, B or A + B
Flange projection: A, B or A + B
Spiroplan®-geared motors WF 20 DT.. with output shaft and flange are only possible in position A or B.
Mounting face of the shaft mounted unit having a shrink disc feature: A or B



Selon le cas, les indications suivantes sont indispensables:

c) **Sens de rotation (uniquement réducteurs avec antidiéviseur):**
Rotation à droite ou à gauche (vue sur l'arbre de sortie).
Pour réducteurs à arbres perpendiculaires avec indication, vue côté A ou B
d) **Uniquement pour réducteurs à arbres perpendiculaires:**
Position de l'arbre de sortie: A, B ou A + B
Position de la bride: A, B ou A + B
Sur les motoréducteurs Spiroplan® de type WF 20 DT.., l'arbre de sortie et le flasque sont toujours du même côté (A ou B).
Côté de fixation pour exécution à arbre creux avec frette de serrage: A ou B

**Kundenangabe
Beispiele:**
**Specified by customer
Examples:**
**Indication client
Exemples:**

Bauform	Welle bei	Flansch bei	Lage des Klemmenkastens	Lage der Kableleinführung	Drehinn
Mounting position	Shaft projection at	Flange projection at	Terminal box position	Cable entry position	Rotation
Position de montage	Arbre en	Bride en	Position de la boîte à bornes	Position des entrées de câbles	Sens de rotation
IMV1	A	A	0°	norm.	Rechtslauf / clockwise / à droite
IMB5	B	B	180°	2	Linkslauf / counter-clockwise / à gauche
IMV1	A + B	A + B	0°	1	Rechtslauf A / clockwise at A / à droite en A

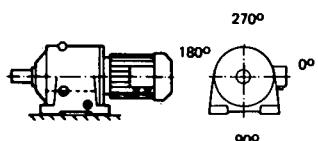
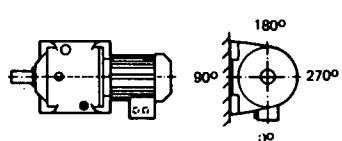
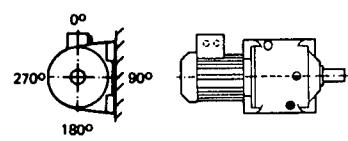
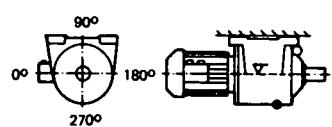
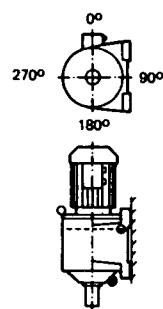
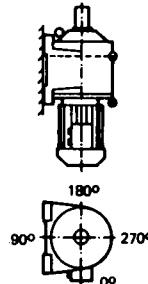
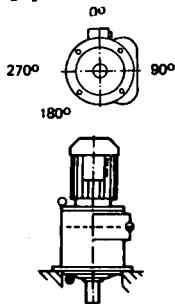
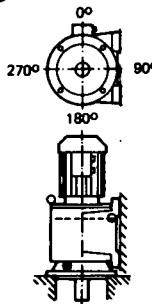
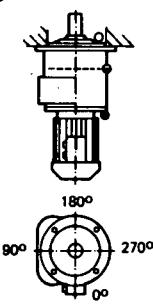
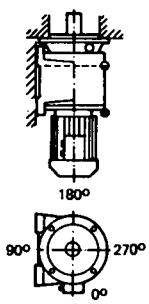
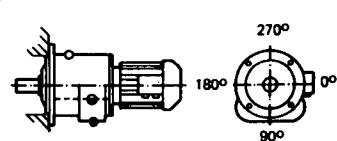
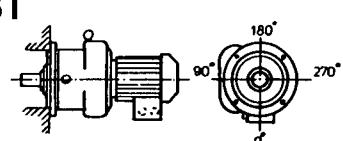
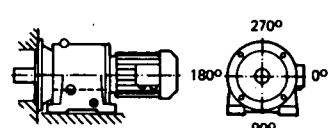
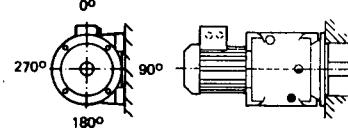
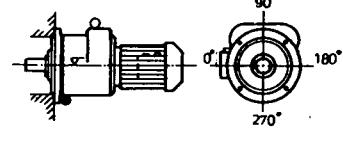
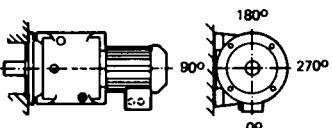
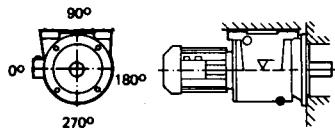
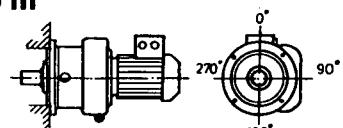
Stirnradgetriebemotoren
Stirnradgetriebe
Bauformen IM..

Helical Geared Motors
Helical Gear Units
Mounting positions IM..

Motoréducteurs et réducteurs
à engrenages cylindriques
Positions de montage IM..

SEW**R40-R60, RF40-RF60**

04 011 50

B3**B6****B7****B8****V5****V6****V1****V15****V3****V36****B5****B5 I****B35****B75****B5 II****B65****B85****B5 III**

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Stirnradgetriebemotoren
Stirnradgetriebe
Bauformen IM..

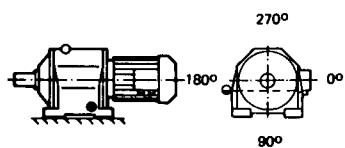
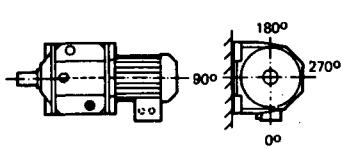
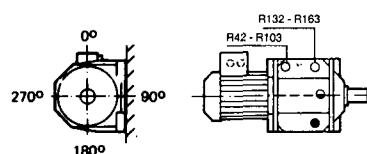
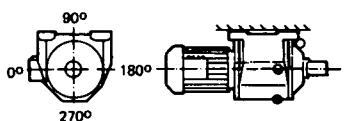
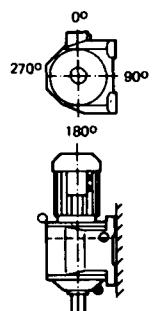
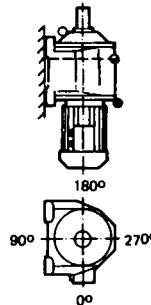
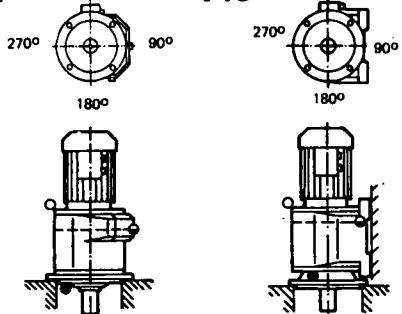
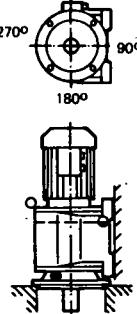
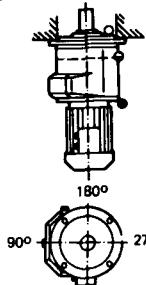
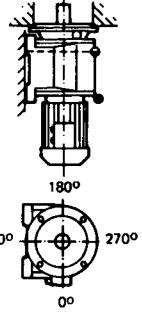
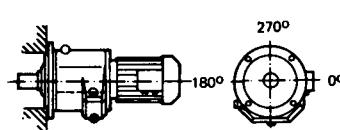
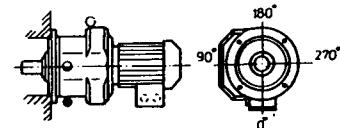
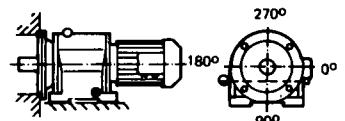
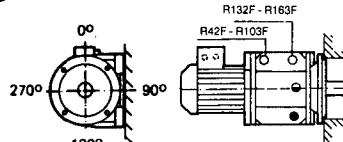
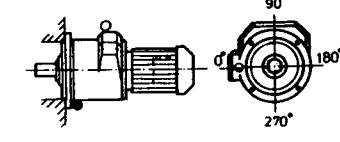
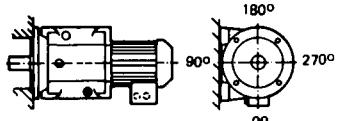
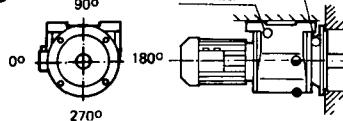
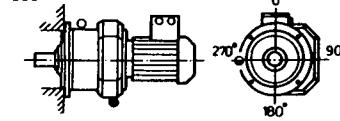
Helical Geared Motors
Helical Gear Units
Mounting positions IM..

Motoréducteurs et réducteurs
à engrenages cylindriques
Positions de montage IM..

SEW

R32-R163, RF32-RF163

04 078 25

B3**B6****B7****B8****V5 *****V6 *****V1 *****V15 *****V3 *****V36 *****B5****B5 I****B35****B75****B5 II****B65****B85****B5 III**

* Bei Getriebebaugrößen 92/93 und 102/103 und Eintreibsrehzahlen > 2500 1/min sowie bei Baugrößen > 103 und Eintreibsrehzahlen > 1500 1/min bitte um Rücksprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

* For gear unit sizes 92/93 and 102/103 with input speeds > 2500 1/min as well as for sizes > 103 with input speeds > 1500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

* Pour les réducteurs tailles 92/93 et 102/103 ayant des vitesses d'entrée moteur > 2500 1/min, ainsi que pour les réducteurs taille > 103 ayant des vitesses d'entrée moteur > 1500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Stirnradgetriebemotoren
Stirnradgetriebe
Bauformen IM..

Helical Geared Motors
Helical Gear Units
Mounting positions IM..

Motoréducteurs et réducteurs
à engrenages cylindriques
Positions de montage IM..

SEW**R62R..-R163R.., RF62R..-RF163R..**

04 079 25

B3	B6	B7
B8	V5 *	V6 *
V1 * 	V15 * 	V3 *
V15 * 	V36 * 	B5
B35 	B75 	B5 II
B65 	B85 	B5 III

* Bei motorseitigen Getriebeabgrößen 92/93 und 102 und Eintreibsdrehzahlen > 2500 1/min bitte um Rück-sprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

* For the motor mated gear unit sizes 92/93 and 102 with input speeds > 2500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

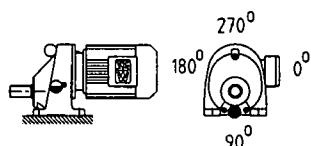
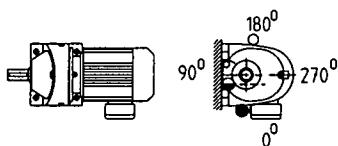
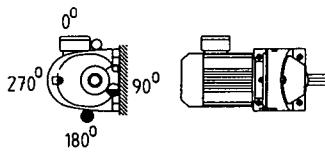
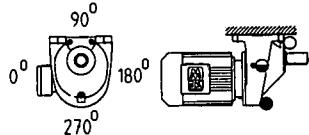
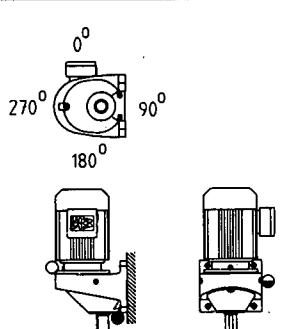
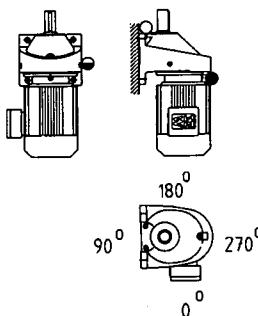
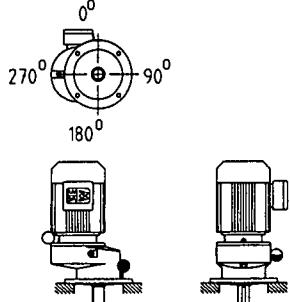
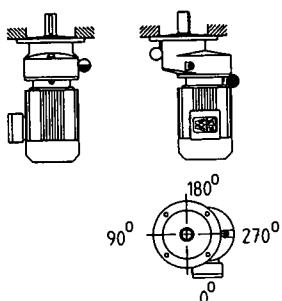
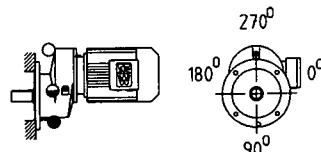
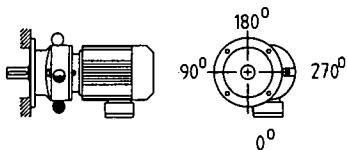
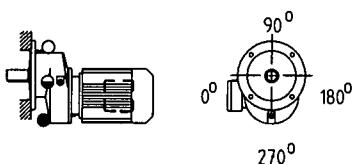
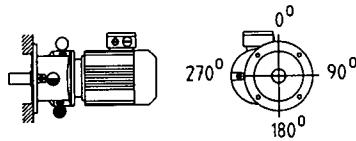
* Pour les réducteurs côté moteur tailles 92/93 et 102 ayant des vitesses d'entrée moteur > 2500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Stirnradgetriebemotoren
Stirnradgetriebe
Bauformen IM..

Helical Geared Motors
Helical Gear Units
Mounting positions IM..

Motoréducteurs et réducteurs
à engrenages cylindriques
Positions de montage IM..

SEW**RX61-RX101, RXF61-RXF101****04 018 31****B3****B6****B7****B8****V5 *****V6****V1 *****V3 *****B5****B5 I****B5 II****B5 III**

* Bei Getriebebaugröße 101 und Eintriebsdrehzahlen > 2500 1/min bitte um Rücksprache.
 Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Algemeines“ beachten.

* For gear unit size 101 with input speeds > 2500 1/min, please refer to our technical department.
 When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

* Pour le réducteur taille 101 ayant des vitesses d'entrée moteur > 2500 1/min, veuillez nous consulter.
 Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Flachgetriebemotoren
Flachgetriebe
Fußausführung
Bauformen IM..

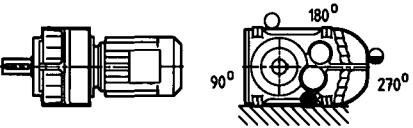
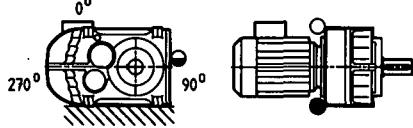
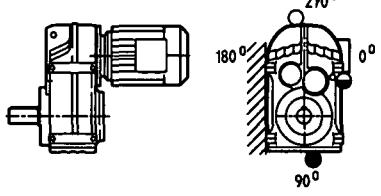
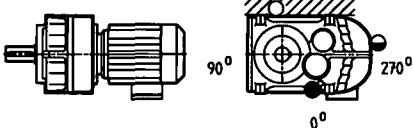
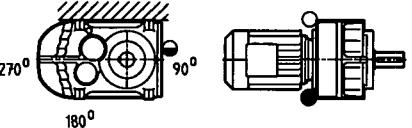
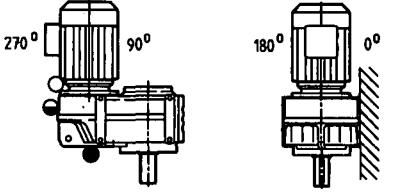
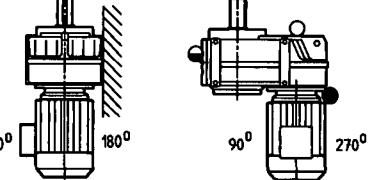
SEW

Parallel Shaft
Helical Geared Motors
and Helical Gear Units
foot mounted
mounting positions IM..

F37-F127¹⁾

Motorréducteurs et réducteurs
à arbres parallèles
Exécution à pattes
Positions de montage IM..

42 036 05

B3 * 	B3 I * 	B6 
B8 * 	B8 I * 	V5 * 
V6 * 		

¹⁾ Gilt sinngemäß auch für Flachgetriebemotoren in Fußausführung mit Hohlwelle FA..B, FV..B, FH..B.

* Bei Getriebebaugrößen 97-107 und Eintriebsdrehzahlen > 2500 1/min sowie bei Baugröße 127 und Eintriebsdrehzahlen > 1500 1/min bitte um Rücksprache.

Bitte bei Bauformbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

¹⁾ Principally applies for foot mounted parallel shaft geared motors with hollow shaft FA..B, FV..B, FH..B.

* For gear unit sizes 97-107 with input speeds > 2500 1/min as well as for size 127 with input speeds > 1500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions in general".

¹⁾ Egalement valable pour motorréducteurs à arbres parallèles en exécution à pattes avec arbre creux FA..B, FV..B, FH..B.

* Pour les réducteurs tailles 97-107 ayant des vitesses d'entrée moteur > 2500 1/min, ainsi que pour le réducteur taille 127 ayant des vitesses d'entrée moteur > 1500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Flachgetriebemotoren
Flachgetriebe
Fußausführung
Bauformen IM..

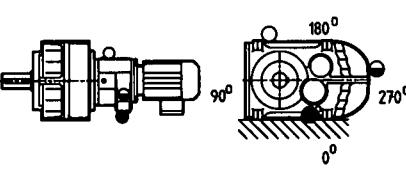
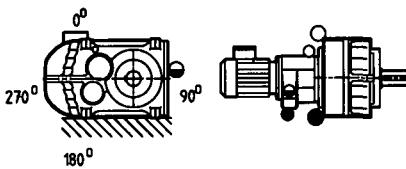
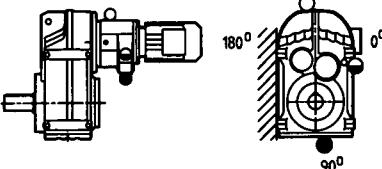
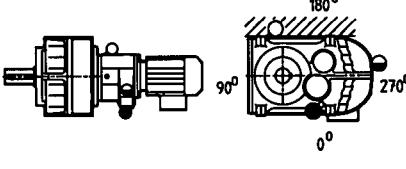
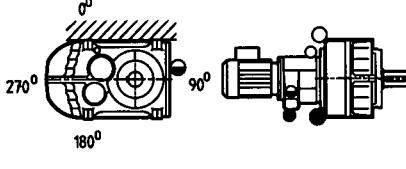
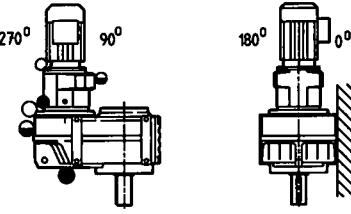
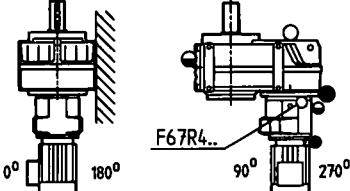
SEW

Parallel Shaft
Helical Geared Motors
and Helical Gear Units
foot mounted
mounting positions IM..

F67R..-F127R..¹⁾

Motorréducteurs et réducteurs
à arbres parallèles
Exécution à pattes
Positions de montage IM..

42 037 05

B3	B3 I	B6
		
B8	B8 I	V5
		
V6		
		

¹⁾ Gilt sinngemäß auch für Flachgetriebemotoren in Fußausführung mit Hohlwelle FA..BR., FV.BR., FH..BR..

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

¹⁾ Principally applies for foot mounted parallel shaft geared motors with hollow shaft FA..BR., FV.BR., FH..BR..

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

¹⁾ Egalement valable pour motorréducteurs à arbres parallèles en exécution à pattes avec arbre creux FA..BR., FV.BR., FH..BR..

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Flachgetriebemotoren
Flachgetriebe
Bauformen IM..

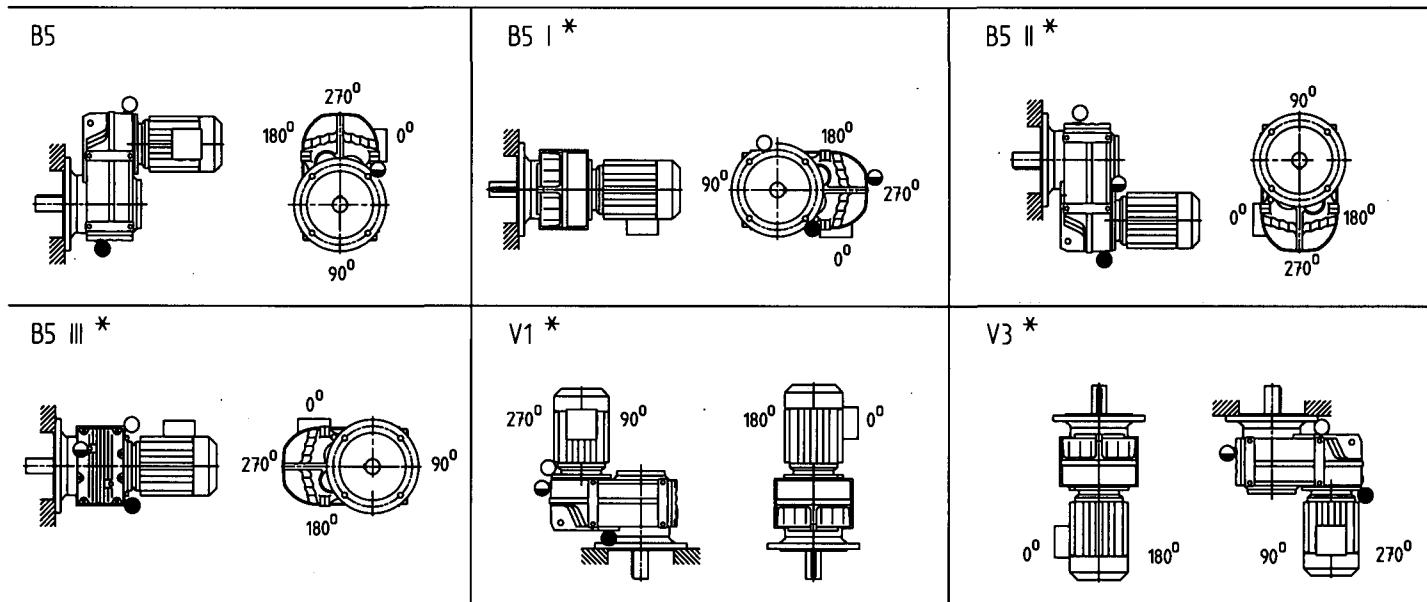
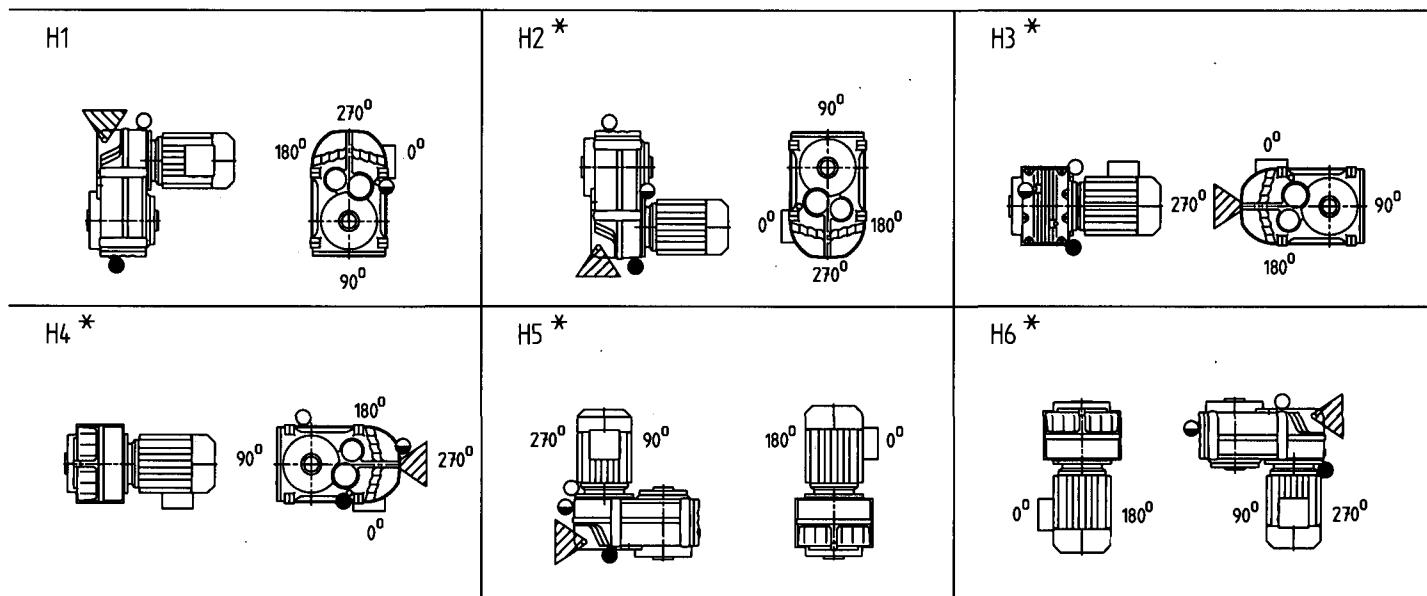
Parallel Shaft
Helical Geared Motors
and Helical Gear Units
mounting positions IM..

Motoréducteurs et réducteurs
à arbres parallèles
Positions de montage IM..

SEW

FF., FA., FAF., FAZ37-127

42 038 15

FF37-FF127**FA37-FA127, FAF37-FAF127, FAZ37-FAZ127¹⁾**

¹⁾ Gilt sinngemäß auch für Flachgetriebemotoren in Ausführung FV., FH., FVZ., FHZ., FVF., FHF..

* Bei Getriebebaugrößen 97-107 und Eintriebsdrehzahlen > 2500 1/min sowie bei Baugröße 127 und Eintriebsdrehzahlen > 1500 1/min bitte um Rücksprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

¹⁾ Principally applies for parallel shaft geared motors FV., FH., FVZ., FHZ., FVF., FHF..

* For gear unit sizes 97-107 with input speeds > 2500 1/min as well as for size 127 with input speeds > 1500 1/min, please refer to our technical department. When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

¹⁾ Egalement valable pour motoréducteurs à arbres parallèles en exécution FV., FH., FVZ., FHZ., FVF., FHF..

* Pour les réducteurs tailles 97-107 ayant des vitesses d'entrée moteur > 2500 1/min, ainsi que pour le réducteur taille 127 ayant des vitesses d'entrée moteur > 1500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

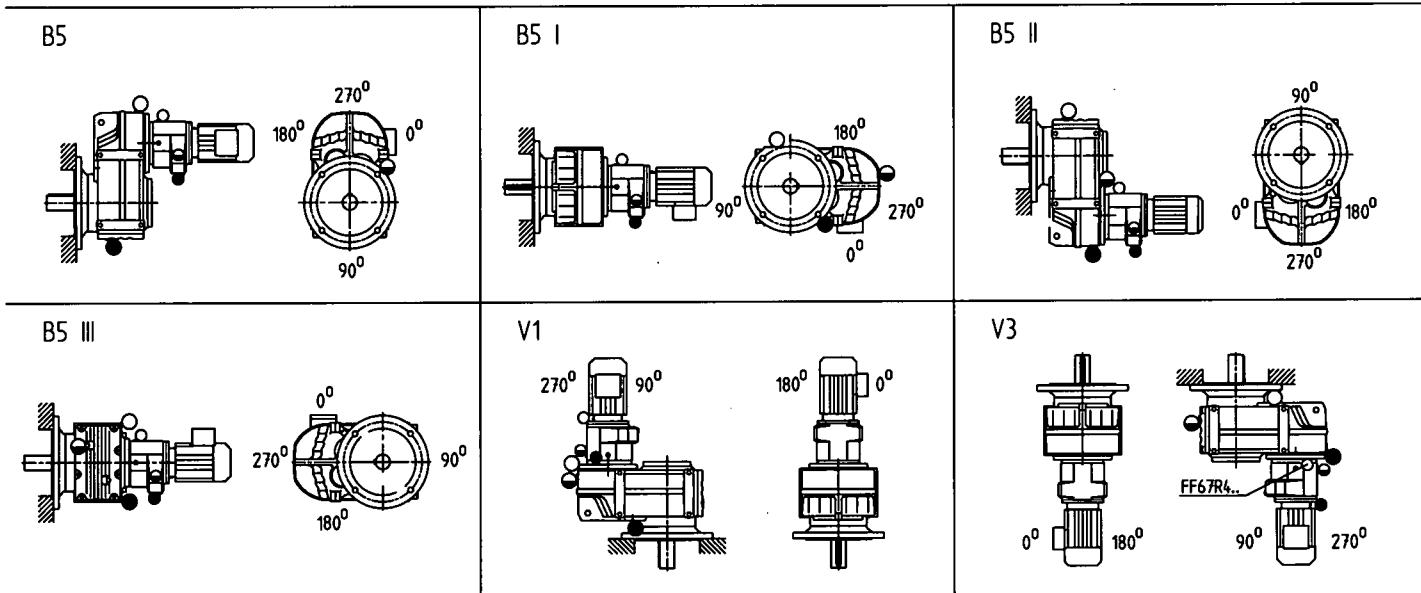
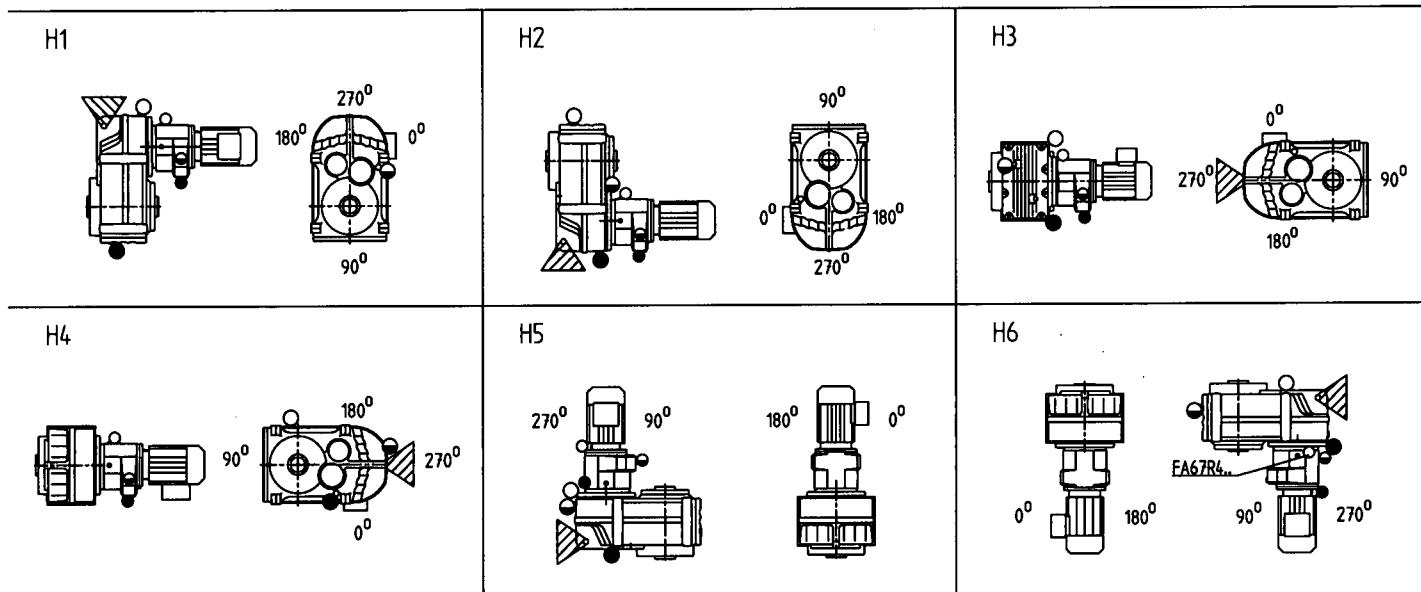
Flachgetriebemotoren
Flachgetriebe
Bauformen IM..

Parallel Shaft
Helical Geared Motors
and Helical Gear Units
mounting positions IM..

Motorréducteurs et réducteurs
à arbres parallèles
Positions de montage IM..

SEW**FF..R.., FA..R.., FAF..R.., FAZ67R..-FAZ127R..**

42 039 15

FF67R..-FF127R..**FA67R..-FA127R.., FAF67R..-FAF127R.., FAZ67R..-FAZ127R..¹⁾**

¹⁾ Gilt sinngemäß auch für Flachgetriebemotoren in Ausführung FV..R., FH..R., FVZ..R., FHZ..R., FVF..R., FHF..R..

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

¹⁾ Principally applies for parallel shaft geared motors FV..R., FH..R., FVZ..R., FHZ..R., FVF..R., FHF..R..

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

¹⁾ Également valable pour motorréducteurs à arbres parallèles en exécution FV..R., FH..R., FVZ..R., FHZ..R., FVF..R., FHF..R..

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Kegelradgetriebemotoren
Kegelradgetriebe
Fußausführung
Bauformen IM..

Helical-Bevel Geared Motors
Helical-Bevel Gear Units
foot mounted
mounting positions IM..

Motoréducteurs et réducteurs
à couple conique
Exécution à pattes
Positions de montage IM..

SEW

K37-K157¹⁾

34 045 15

B3	B3 I *	B6 *
B6 I	B6 II *	B8 *
B8 I *	V5 *	V5 I *
V6 *	V6 I *	

¹⁾ Gilt sinngemäß auch für Kegelradgetriebemotoren in Fußausführung mit Hohlwelle KA..B, KV.B, KH.B.

* Bei Getriebebaugrößen 77-107 und Eintriebsdrehzahlen > 2500 1/min sowie bei Baugrößen > 107 und Eintriebsdrehzahlen > 1500 1/min bitte um Rücksprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

¹⁾ Principally applies for foot mounted helical-bevel geared motors with hollow shaft KA..B, KV.B, KH.B.

* For gear unit sizes 77-107 with input speeds > 2500 1/min as well as for sizes > 107 with input speeds > 1500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

¹⁾ Également valable pour motoréducteurs à couple conique en exécution à pattes avec arbre creux KA..B, KV.B, KH.B.

* Pour les réducteurs tailles 77-107 ayant des vitesses d'entrée moteur > 2500 1/min, ainsi que pour les réducteurs taille > 107 ayant des vitesses d'entrée moteur > 1500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

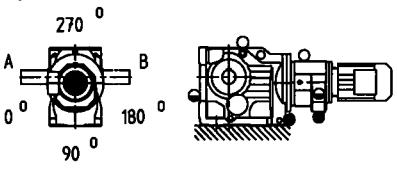
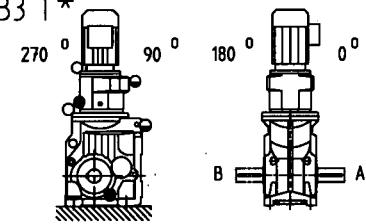
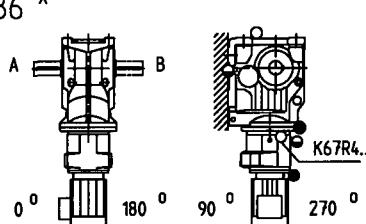
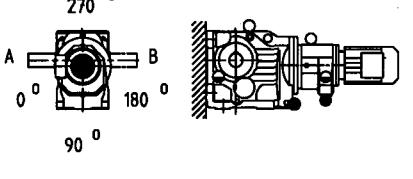
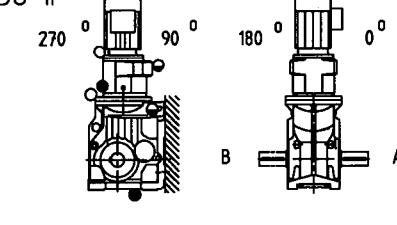
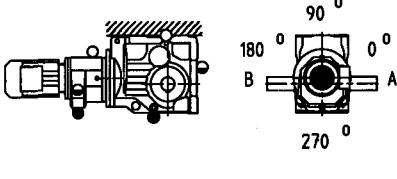
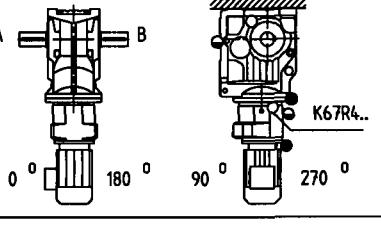
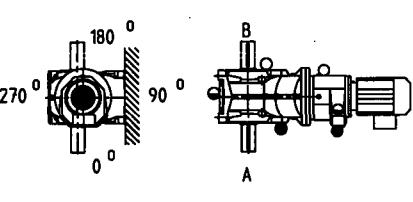
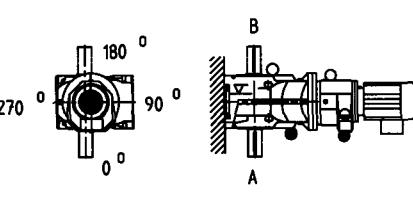
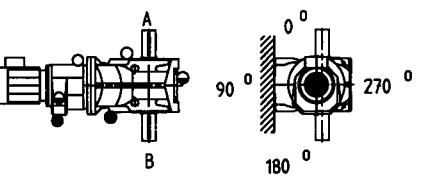
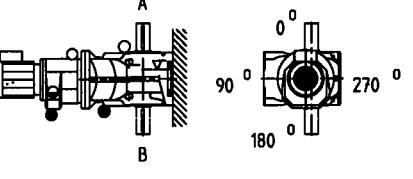
Kegelradgetriebemotoren
Kegelradgetriebe
Fußausführung
Bauformen IM..

Helical-Bevel Geared Motors
Helical-Bevel Gear Units
foot mounted
mounting positions IM..

Motoréducteurs et réducteurs
à couple conique
Exécution à pattes
Positions de montage IM..

SEW**K67R..-K157R..¹⁾**

34 046 15

B3 	B3 I * 	B6 * 
B6 I 	B6 II * 	B8 * 
B8 I * 	V5 * 	V5 I * 
V6 * 	V6 I * 	

¹⁾ Gilt sinngemäß auch für Kegelradgetriebemotoren in Fußausführung mit Hohlwelle KA..BR., KV..BR., KH..BR..

* Bei motorseitigen Getriebebaugrößen 92/93 und 102 und Eintriebsdrehzahlen > 2500 1/min. bitte um Rücksprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

¹⁾ Principally applies for foot mounted helical-bevel geared motors with hollow shaft KA..BR., KV..BR., KH..BR..

* For the motor mated gear unit sizes 92/93 and 102 with input speeds > 2500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

¹⁾ Egalement valable pour motoréducteurs à couple conique en exécution à pattes avec arbre creux KA..BR., KV..BR., KH..BR..

* Pour les réducteurs côté moteur tailles 92/93 et 102 ayant des vitesses d'entrée moteur > 2500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

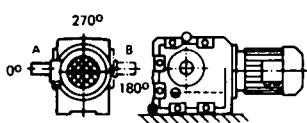
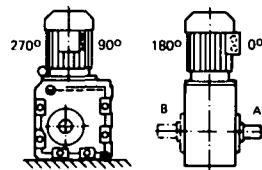
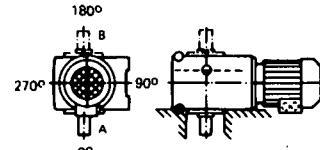
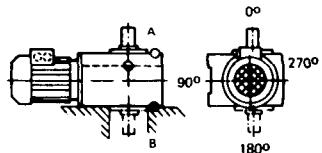
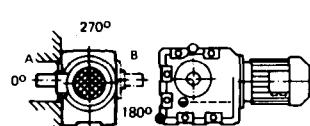
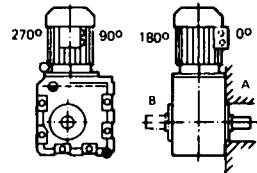
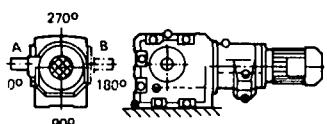
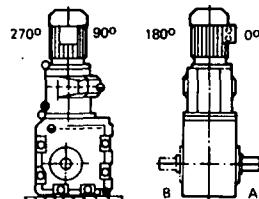
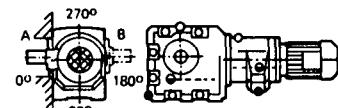
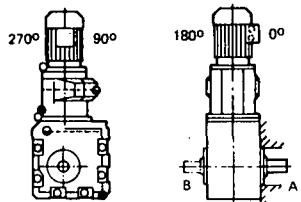
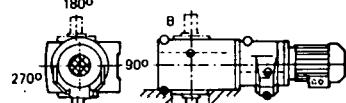
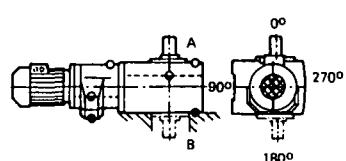
Kegelradgetriebemotoren
Kegelradgetriebe
Fußausführung
Bauformen IM..

Helical-Bevel Geared Motors
Helical-Bevel Gear Units
foot mounted
mounting positions IM..

Motoréducteurs et réducteurs
à couple conique
Exécution à pattes
Positions de montage IM..

SEW**K.., KH.., K..R.., KH166R..-KH186R..**

34 047 05

K166-K186, KH166-KH186**B3****B3 I*****V1 / *****V1 / I*****B5 / I****B5 / II *****K166R..-K186R.., KH166R..-KH186R..****B3****B3 I*****B5 / I****B5 / II *****V1 /****V1 / I**

* Bei Einfachgetrieben mit Eintriebsdrehzahlen > 1500 1/min und bei Doppelgetrieben mit motorseitigen Getriebeabmessungen 92/93 und 102 und Eintriebsdrehzahlen > 2500 1/min bitte um Rücksprache.

Bitte bei Bauformbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

* For single gear units with input speeds > 1500 1/min and for double gear units with motor mated gear unit sizes 92/93 and 102 and input speeds > 2500 1/min, please contact SEW.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

* Pour les réducteurs simple ayant des vitesses d'entrée moteur > 1500 1/min et pour les réducteurs jumelés avec des types R92/93 et R102 ayant des vitesses d'entrée moteur > 2500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Kegelradgetriebemotoren
Kegelradgetriebe
Flanschausführung
Bauformen IM..

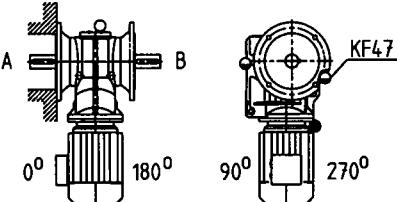
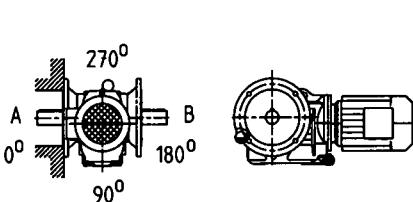
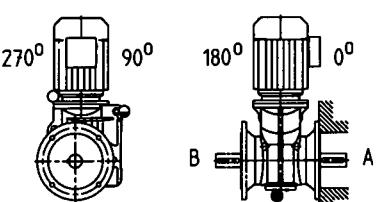
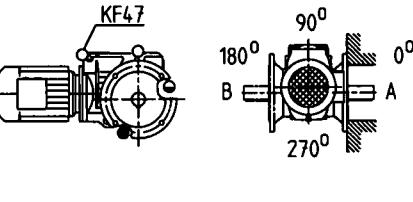
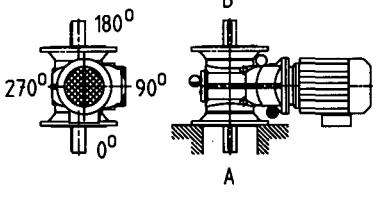
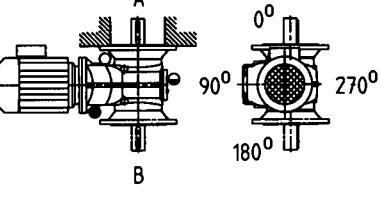
Helical-Bevel Geared Motors
Helical-Bevel Gear Units
flange mounted
mounting positions IM..

Motoréducteurs et réducteurs
à couple conique
Exécution à flasque-bride
Positions de montage IM..

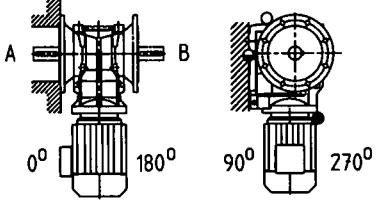
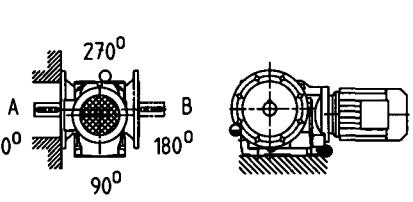
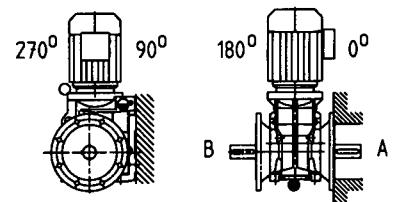
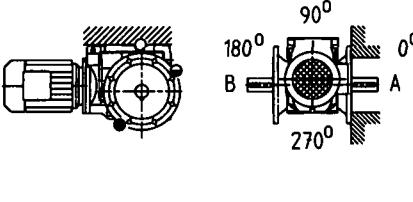
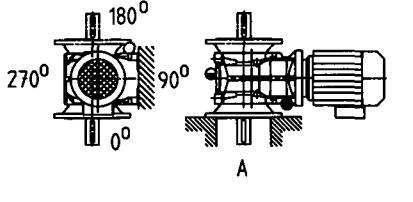
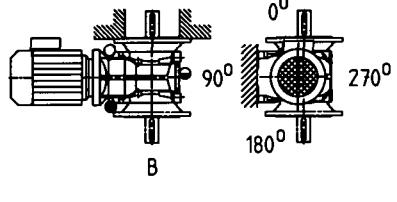
SEW**KF37-KF157**

34 049 15

KF37-KF107

B5 * 	B5 I 	B5 II * 
B5 III * 	V1* 	V1 I * 

KF127-KF157

B5, B65 * 	B5 I, B3 / B5 I 	B5 II, B6 II / B5 II * 
B5 III, B8 / B5 III * 	V1, V15 * 	V1 I, V6 / V1 I * 

* Bei Getriebeaugrößen 77-107 und Eintriebsdrehzahlen > 2500 1/min sowie bei Baugrößen > 107 und Eintriebsdrehzahlen > 1500 1/min bitte um Rück-sprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

* For gear unit sizes 77-107 with input speeds > 2500 1/min as well as for sizes > 107 with input speeds > 1500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

* Pour les réducteurs tailles 77-107 ayant des vitesses d'entrée moteur > 2500 1/min, ainsi que pour les réducteurs taille > 107 ayant des vitesses d'entrée moteur > 1500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Kegelradgetriebemotoren
Kegelradgetriebe
Flanschausführung
Bauformen IM..

Helical-Bevel Geared Motors
Helical-Bevel Gear Units
flange mounted
mounting positions IM..

Motorréducteurs et réducteurs
à couple conique
Exécution à flasque-bride
Positions de montage IM..

SEW**KF67R..-KF157R..**

34 050 15

KF67R..-KF107R..

B5	B5 I	B5 II
B5 III	V1	V1 I

KF127R..-KF157R..

B5, B65	B5 I, B3 / B5 I	B5 II, B6 II / B5 II *
B5 III, B8 / B5 III	V1, V15	V1 I, V6 / V1 I

* Bei motorseitigen Getriebebaugrößen 92/93 und 102 und Eintriebsdrehzahlen > 2500 1/min bitte um Rücksprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

* For the motor mated gear unit sizes 92/93 and 102 with input speeds > 2500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

* Pour les réducteurs côté moteur tailles 92/93 et 102 ayant des vitesses d'entrée moteur > 2500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Kegelradgetriebemotoren
Kegelradgetriebe
Aufsteckausführung
Bauformen IM..

Helical-Bevel Geared Motors
Helical-Bevel Gear Units
shaft mounted
mounting positions IM..

Motoréducteurs et réducteurs
à couple conique
Exécution à arbre creux
Positions de montage IM..

SEW**KA.., KAF.., KAZ37-157**

39 039 15

KA37-KA107, KAF37-KAF107, KAZ37-KAZ107¹⁾

H1	H2 *	H3 *
H4 *	H5 *	H6 *

KA127-KA157, KAF127-KAF157, KAZ127-KAZ157¹⁾

H1	H2 *	H3 *
H4 *	H5 *	H6 *

¹⁾ Gilt sinngemäß auch für Kegelradgetriebemotoren in Ausführung KV., KH..

* Bei Getriebebaugrößen 77-107 und Eintriebsdrehzahlen > 2500 1/min sowie bei Baugrößen > 107 und Eintriebsdrehzahlen > 1500 1/min bitte um Rück-sprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

¹⁾ Principally applies for helical-bevel geared motors KV., KH..

* For gear unit sizes 77-107 with input speeds > 2500 1/min as well as for sizes > 107 with input speeds > 1500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

¹⁾ Également valable pour motoréducteurs à couple conique en exécution KV., KH..

* Pour les réducteurs tailles 77-107 ayant des vitesses d'entrée moteur > 2500 1/min, ainsi que pour les réducteurs taille > 107 ayant des vitesses d'entrée moteur > 1500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

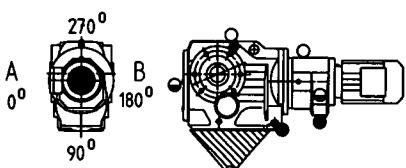
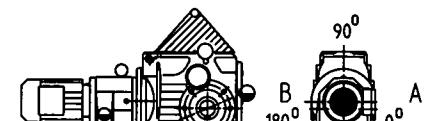
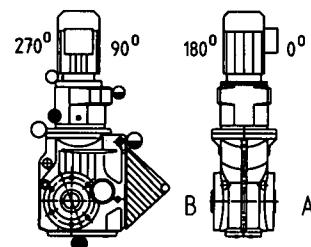
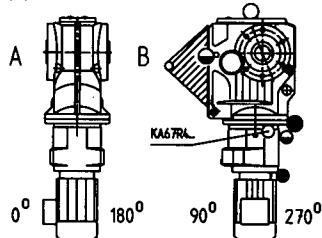
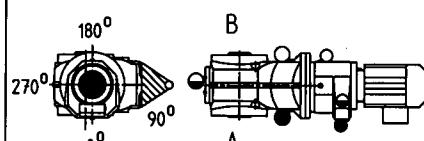
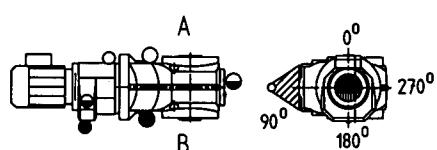
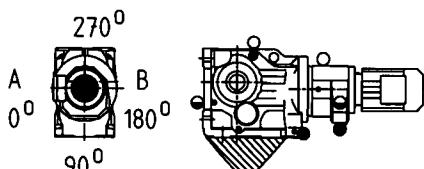
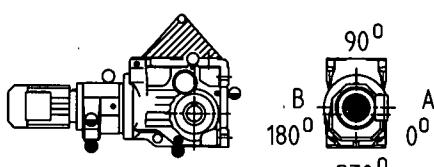
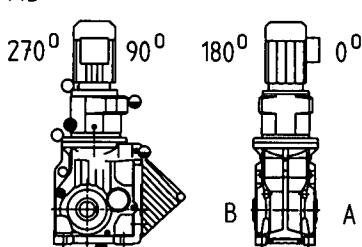
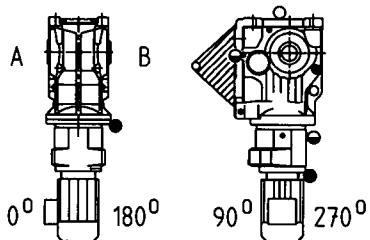
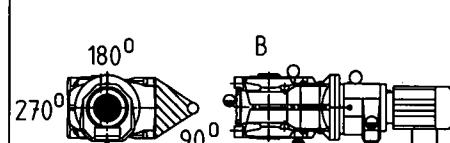
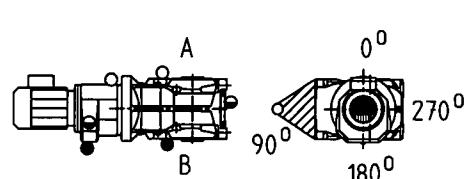
Kegelradgetriebemotoren
Kegelradgetriebe
Aufsteckausführung
Bauformen IM..

Helical-Bevel Geared Motors
Helical-Bevel Gear Units
shaft mounted
mounting positions IM..

Motorréducteurs et réducteurs
à couple conique
Exécution à arbre creux
Positions de montage IM..

SEW**KA..R.., KAF..R.., KAZ67R..-KAZ157R..**

39 040 15

KA67R..-KA107R.., KAF67R..-KAF107R.., KAZ67R..-KAZ107R..¹⁾**H1****H2****H3 *****H4 *****H5****H6****KA127R..-KA157R.., KAF127R..-KAF157R.., KAZ127R..-KAZ157R..¹⁾****H1****H2****H3 *****H4 *****H5****H6**

¹⁾ Gilt sinngemäß auch für Kegelradgetriebemotoren in Ausführung KV.R.., KH.R..

* Bei motorseitigen Getriebeabgrößen 92/93 und 102 und Einstellsdrehzahlen > 2500 1/min. bitte um Rücksprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

¹⁾ Principally applies for helical-bevel geared motors KV.R.., KH.R..

* For the motor mated gear unit sizes 92/93 and 102 with input speeds > 2500 1/min, please refer to our technical department.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

¹⁾ Également valable pour motorréducteurs à couple conique en exécution KV.R, KH.R..

* Pour les réducteurs côté moteur tailles 92/93 et 102 ayant des vitesses d'entrée moteur > 2500 1/min, veuillez nous consulter.

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Schneckengetriebemotoren
Schneckengetriebe
Fußausführung
Bauformen IM..

Helical-Worm Geared Motors
Helical-Worm Gear Units
Foot mounted
Mounting positions IM..

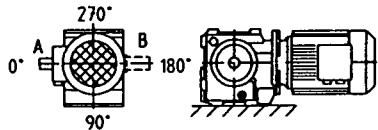
Motoréducteurs et réducteurs
à vis sans fin
Exécution à pattes
Positions de montage IM..

SEW

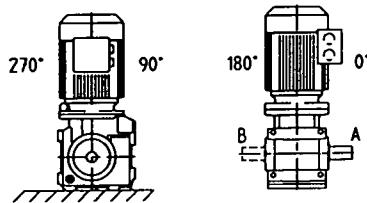
S32

05 017 11

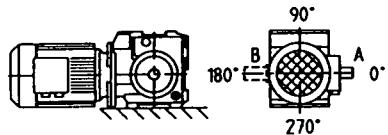
B3



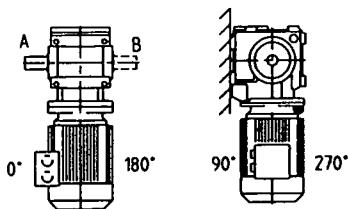
B3 I



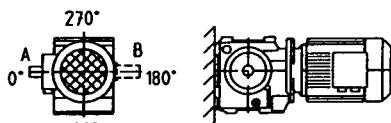
B3 II



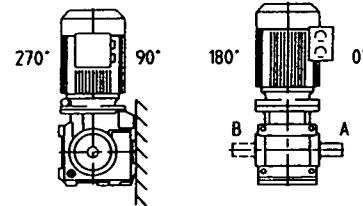
B6



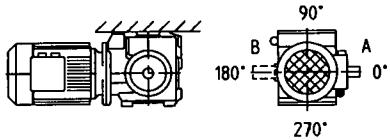
B6 I



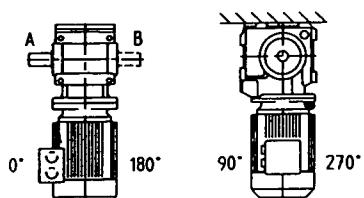
B6 II



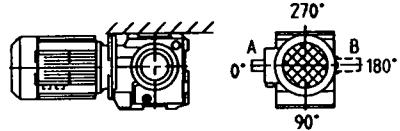
B8



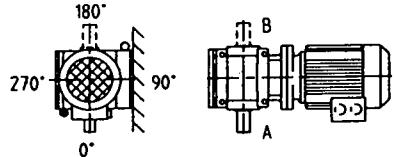
B8 I



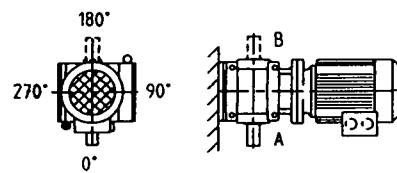
B8 II



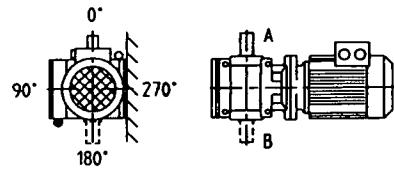
V5



V5 I



V5 II



Achtung: keine Ölstandsschraube

Attention: no oil level plug

Attention: pas de bouchon de niveau

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

A 19

Q-Pulse Id TMS648

Active 29/01/2014

Spiroplan® Gear Units R, F..7, K..7, S, - ICM

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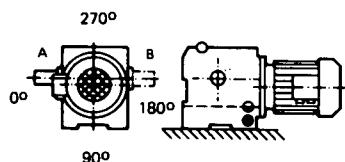
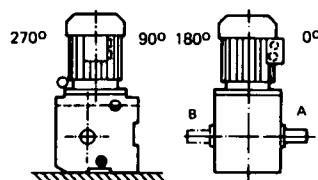
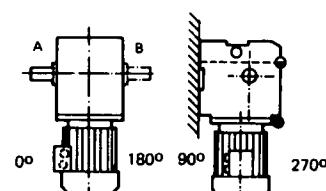
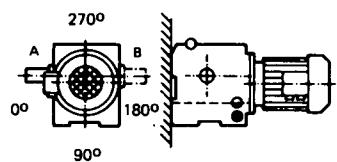
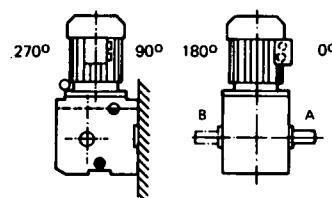
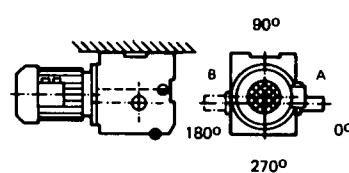
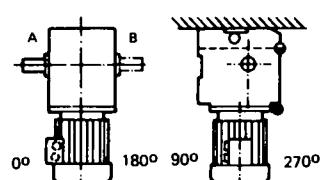
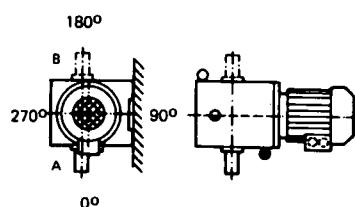
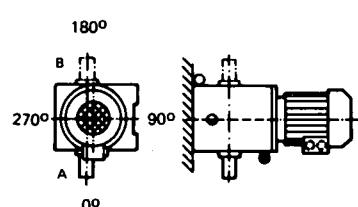
Schneckengetriebemotoren
Schneckengetriebe
Fußausführung
Bauformen IM..

Helical-Worm Geared Motors
Helical-Worm Gear Units
Foot mounted
Mounting positions IM..

Motorréducteurs et réducteurs
à vis sans fin
Exécution à pattes
Positions de montage IM..

SEW**S42-S92**

05 032 47

B3**B3 I*****B6 *****B6 I****B6 II*****B8****B8 I*****V5****V5 I**

* Bei Getriebeaugrößen 72-92 und Eintrittsdrehzahlen > 2500 1/min bitte um Rücksprache.
 Bitte beachten, daß bei Bauform V5 und V5 I und Welle A oben die Funktionen der Entlüftungsschraube und Öl-ablaßschraube vertauscht sind.
Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

* For gear unit sizes 72-92 with input speeds > 2500 1/min, please refer to our technical department.
 Please note that with mounting positions V5 and V5 I and output shaft A upwards, the functions of the breath plug and oil drain plug are changed about.
When specifying the Mounting Position please take special note of the chapter "Mounting Positions in general".

* Pour les réducteurs tailles 72-92 ayant des vitesses d'entrée moteur > 2500 1/min, veuillez nous consulter.
 Remarque: En position V5 et V5I, avec arbre A en position supérieure, les fonctions de l'évent et de la vis de vidange sont inversées.
Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Spiroplan® Gear Units R, F..7, K..7, S, - ICM**A 20**

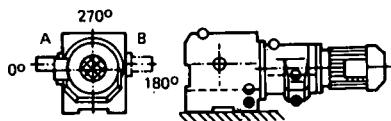
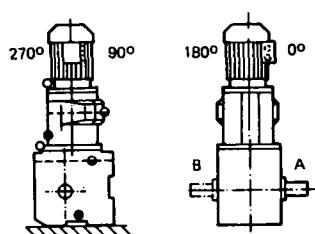
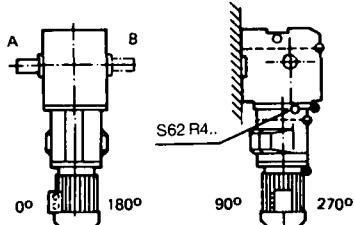
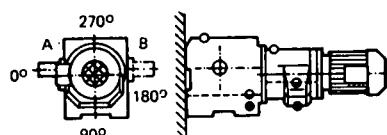
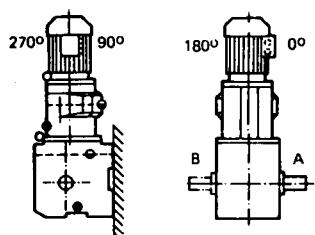
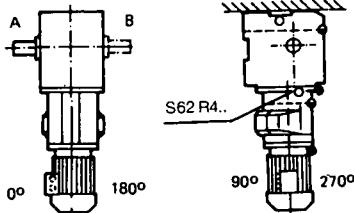
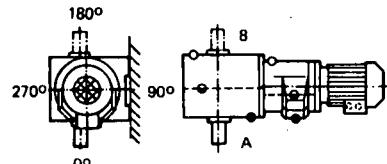
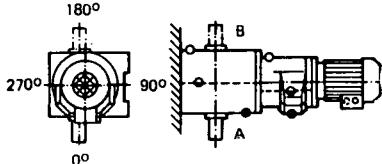
Schneckengetriebemotoren
Schneckengetriebe
Fußausführung
Bauformen IM..

Helical-Worm Geared Motors
Helical-Worm Gear Units
Foot mounted
Mounting positions IM..

Motoréducteurs et réducteurs
à vis sans fin
Exécution à pattes
Positions de montage IM..

SEW**S62R..-S92R..**

05 010 05

B3**B3 I*****B6 *****B6 I****B6 II*****B8 I *****V5****V5 I**

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Schneckengetriebemotoren
Schneckengetriebe
Flanschausführung
Bauformen IM..

Helical-Worm Geared Motors
Helical-Worm Gear Units
Flange mounted
Mounting positions IM..

Motorréducteurs et réducteurs
à vis sans fin
Exécution à flasque-bride
Positions de montage IM..

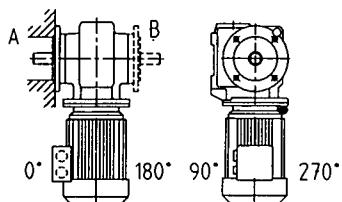


SF32, SA32, SAF32

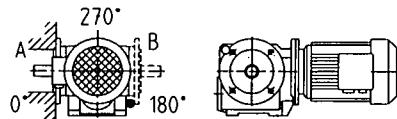
05 018 01

SF32

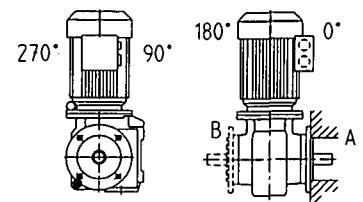
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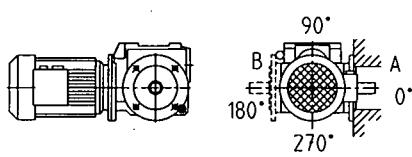
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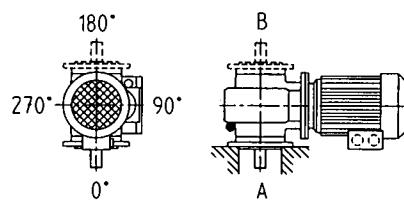
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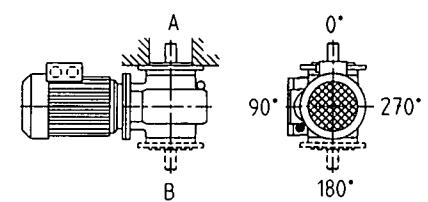
B5 III



V1

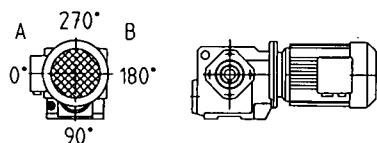


V1 I

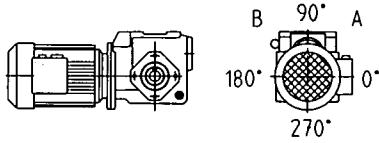


SA32, SAF32

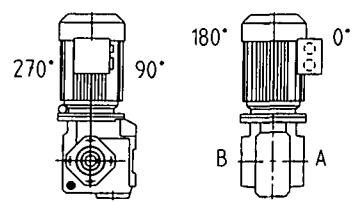
H1



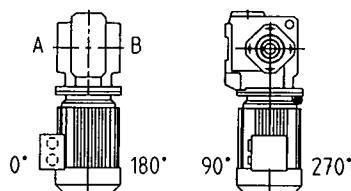
H2



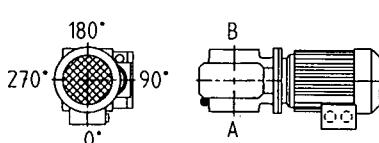
H3



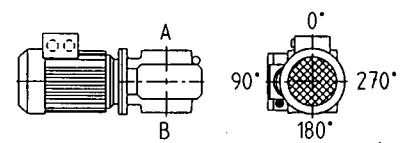
H4



H5



H6



Achtung: keine Ölstandsschraube

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

Spiroplan® Gear Units R, F..7, K..7, S, – ICM

Attention: no oil level plug

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

Attention: pas de bouchon de niveau

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

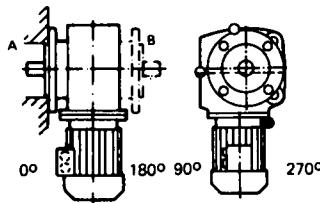
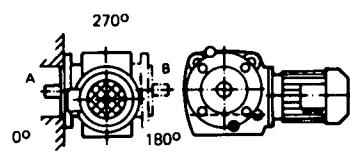
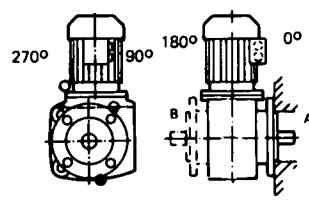
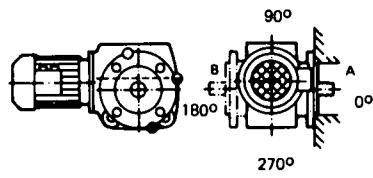
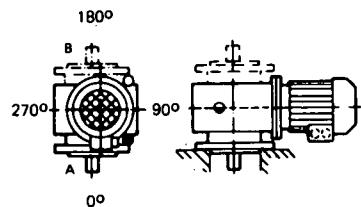
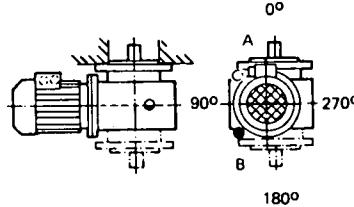
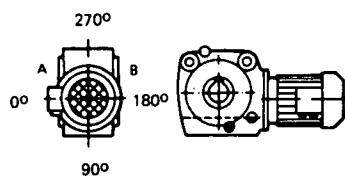
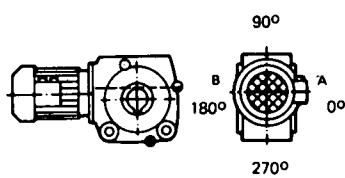
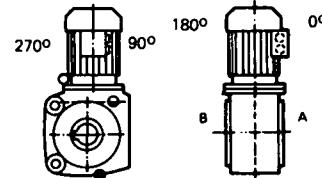
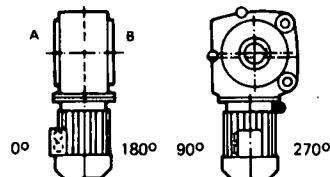
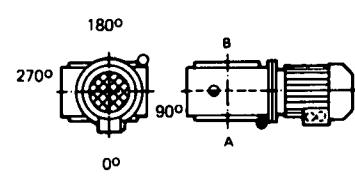
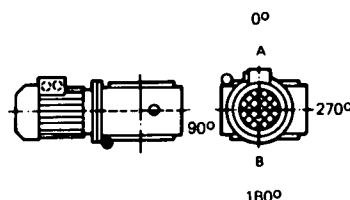
Schneckengetriebemotoren
Schneckengetriebe
Bauformen IM..

Helical-Worm Geared Motors
Helical-Worm Gear Units
Mounting positions IM..

Motoréducteurs et réducteurs
à vis sans fin
Positions de montage IM..

SEW**SF42-SF92, SA42-SA92, SAF42-SAF92**

05 004 30

SF42-SF92**B5*****B5 I****B5 II *****B5 III****V1****V1 I****SA42-SA92, SAF42-SAF92****H1****H2****H3 *****H4*****H5****H6**

* Bei Getriebebaugrößen 72-92 und Eintriebsdrehzahlen > 2500 1/min bitte um Rücksprache.

Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

* For gear unit sizes 72-92 with input speeds > 2500 1/min, please refer to our technical department.
When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

* Pour les réducteurs tailles 72-92 ayant des vitesses d'entrée moteur > 2500 1/min, veuillez nous consulter.
Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Schneckengetriebemotoren
Schneckengetriebe
Bauformen IM..

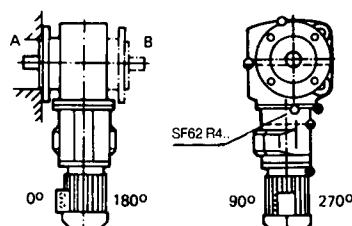
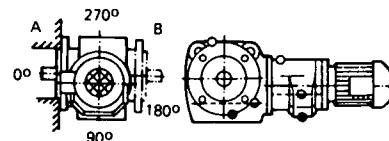
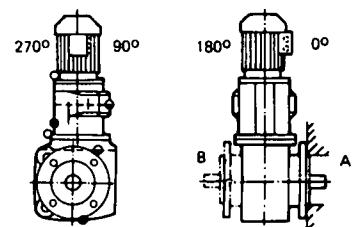
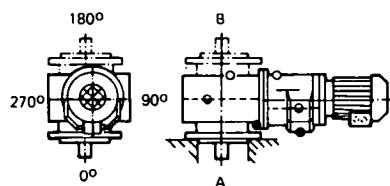
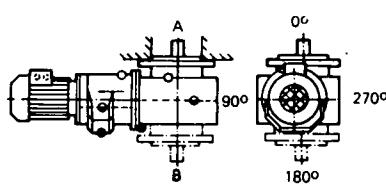
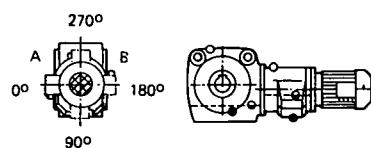
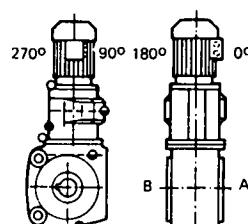
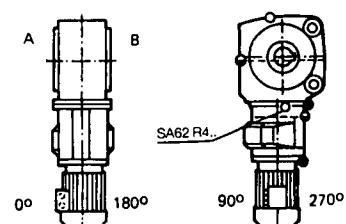
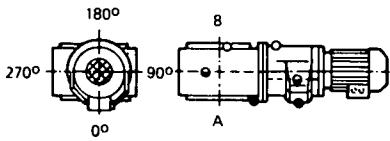
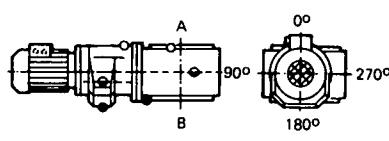
Helical-Worm Geared Motors
Helical-Worm Gear Units
Mounting positions IM..

Motoréducteurs et réducteurs
à vis sans fin
Positions de montage IM..

SEW

SF62R..-SF92R.., SA62R..-SA92R..,
SAF62R..-SAF92R..

05 011 05

SF62R..-SF92R..**B5 *****B5 I****B5 II *****V1****V1 I****SA62R..-SA92R.., SAF62R..-SAF92R..****H1****H3 *****H4 *****H5****H6**

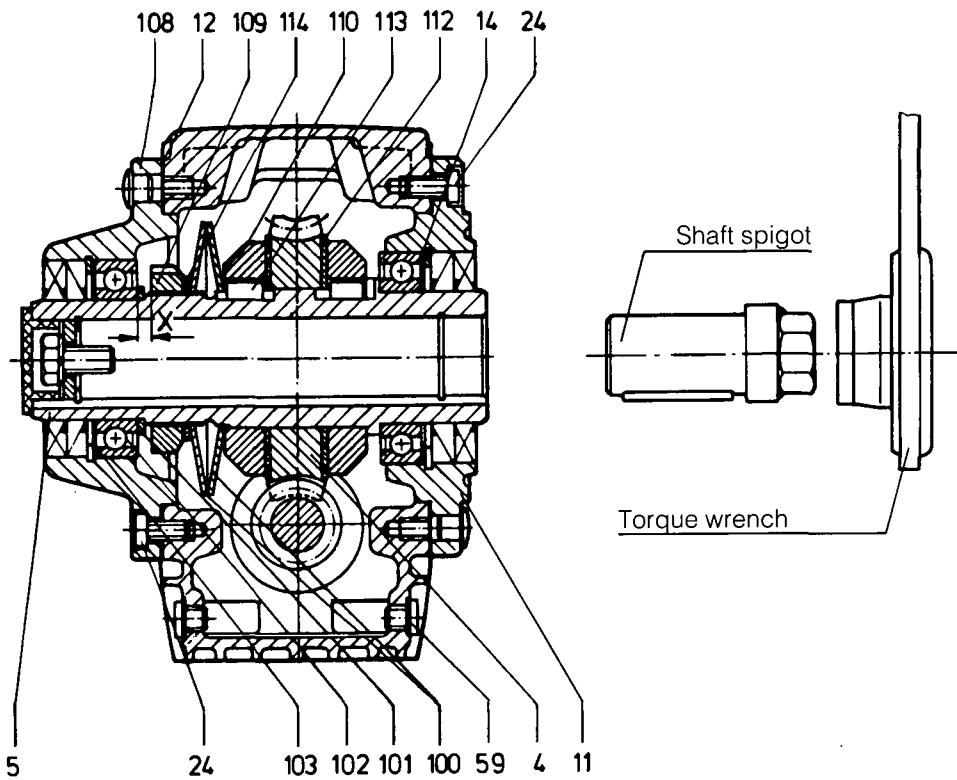
Bitte bei Bauformenbeschreibung unbedingt Kapitel „Bauformen-Allgemeines“ beachten.

When specifying the Mounting Position please take special note of the chapter "Mounting Positions In general".

Tenir compte des remarques énoncées au chapitre "Positions de montage-Divers".

Maintenance (Addendum)

Shaft mounted helical-worm gear unit SA52 with torque limiting coupling



The shaft mounted helical-worm gear unit is supplied in an operating condition. The torque limiting coupling is adjusted to the desired slipping torque.

1. Adjustment resp. readjustment of the torque limiting coupling

- 1.1 Screw out the drain plug (59) and drain the oil.
- 1.2 Remove the socket head screws (24).
- 1.3 Loosen the bearing flange (108) from the housing spigot and remove.
- 1.4 With a sickle spanner 68/75 DIN 1810 the slotted round nut (109) can be tightened up or loosened. A quarter turn clockwise increases the coupling torque by approx. 10 to 15%.
- Note**
With maximum set output torque of the helical-worm gear unit the dimension "X" between the slotted round nut and the bearing should measure about 7 mm (With intact friction linings).
- 1.5 The coupling torque is tested by means of a torque wrench. As connection between the torque wrench and hollow shaft we recommend a shaft spigot with a hexagon nut welded on, please refer to the figure.
- 1.6 Before reassembling clean the sealing surface and apply sealing compound.
Position new paper gasket (12) and reassemble in the opposite sequence.
- 1.7 Fill in oil per the mounting position and check via the oil level screw.

For readjustment of the coupling or repair of the gear unit the following is to be carried out.

2. Replacing the friction linings

- 2.1 Proceed as for 1.1 to 1.4.
- 2.2 Before dismantling the centring flange (11) loosen the slotted round nut (109).
- 2.3 Loosen the socket head screws (24) and remove the centring flange (11) (in the same manner as the bearing flange 108).
- 2.4 Completely remove the hollow shaft (5) with the torque limiting coupling and worm wheel out of the housing, draw off the ball bearing (102) and remove spacer ring (101).
- 2.5 Dismantle the slotted round nut (109), spacer (114), cup springs (100) as well as the driving plate (110).
- 2.6 Take out the key (113), remove the worm (4) and replace the friction linings (112).
- 2.7 In the reverse sequence reassemble again, refer also to 1.5 to 1.7.
Please ensure that by means of the shims (14) and (103) the worm wheel is again positioned centrally over the worm.

Service and spare parts



Germany	Headquarters Manufacture Sales/Service	Bruchsal	SEW-EURODRIVE GmbH & Co Ernst-Blickle-Straße 42 · D-76646 Bruchsal Post-office box address: Postfach 30 23 · D-76642 Bruchsal	Tel. (0 72 51) 75-0 Telefax (0 72 51) 75-1970 Telex 7 822 391
	Manufacture	Graben	SEW-EURODRIVE GmbH & Co Ernst-Blickle-Straße 1 · D-76676 Graben-Neudorf Post-office box address: Postfach 12 20 · D-76671 Graben-Neudorf	Tel. (0 72 51) 75-0 Telefax (0 72 51) 75-2970 Telex 7 822 276
	Assembly Service	Garbsen (near Hanover)	SEW-EURODRIVE GmbH & Co D-30823 Garbsen · Alte Ricklinger Straße 40-42 Post-office box address: Postfach 11 04 53 · D-30804 Garbsen	Tel. (0 51 37) 87 98-30 Telefax (0 51 37) 87 98-55
		Langenfeld (near Düsseldorf)	SEW-EURODRIVE GmbH & Co Siemensstraße 1 · D-40764 Langenfeld	Tel. (0 21 73) 85 07-10+30 Telefax (0 21 73) 85 07-50
		Meerane (near Zwickau)	SEW-EURODRIVE GmbH & Co Dänkriter Weg 1 · D-08393 Meerane	Tel. (0 37 64) 76 06-0 Telefax (0 37 64) 76 06-30
France	Manufacture Sales Service	Haguenau	SEW-USOCOME S.A. 48-54, route de Soufflenheim, B.P. 185 F-67506 Haguenau Cedex	Tel. 03 88 73 67 00 Telefax 03 88 73 66 00 Telex 870 033
	Assembly Service Technical Offices	Bordeaux	SEW-USOCOME Parc d'activités de PESSAC-MAGELLAN Avenue de Magellan B.P. 182 F-33606 Pessac Cedex	Tel. 05 56 36 65 22 Telefax 05 56 36 62 81
		Paris	SEW-USOCOME Zone Industrielle, Rue Denis PAPIN-B.P. 5 F-77390 Verneuil l'Etang	Tel. 01 64 42 40 80 Telefax 01 64 42 40 88 Minitelex 219 423
Australia	Assembly Sales Service	Melbourne	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043	Tel. (03) 93 38-79 11 Telefax (03) 93 30-32 31
		Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park Sydney N.S.W. 2064	Tel. (02) 756-10 55 Telefax (02) 756-10 05
Austria	Assembly Sales Service	Vienna	SEW-EURODRIVE Ges.m.b.H. Industriestraße B4 A-2345 Brunn a. Geb. bei Wien	Tel. (0 22 36) 3 16 31-3 16 35 Telefax (0 22 36) 3 33 85 Telex 79 123
Belgium	Assembly Sales Service	Brussels	CARON-VECTOR S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. (010) 23 13 11 Telefax (010) 23 13 36 Telex 59 509
Brazil	Manufacture Sales Service	Sao Paulo	SEW DO BRASIL Motores-Redutores Ltda. Caixa Postal 201 Rodovia Presidente Dutra km 213 07210 Guarulhos-SP	Tel. (011) 9 60 64 33 Telefax (011) 9 60 14 49 Telex 66 135
Canada	Assembly Sales Service	Toronto	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, Ontario L6T 3W1	Tel. (905) 7 91-15 53 Telefax (905) 7 91-29 99
		Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. 7188 Honeyman Street Delta, B.C. V4G 1E2	Tel. (604) 2 72 42 88 + 9 46 55 35 Telefax (604) 946-2513
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Finland	Assembly Sales Service	Lahti	SEW-EURODRIVE OY Vesimäentie 4 SF-15860 Hollola 2	Tel. (3) 7 80 42 11 Telefax (3) 7 80 62 11
Great Britain	Assembly Sales Service	Normanton	SEW-EURODRIVE Ltd. Beckbridge Industrial Estate P.O. Box No. 1 GB-Normanton, West-Yorkshire WF6 1QR	Tel. 1/9 24 89 38 55 Telefax 1/9 24 89 37 02 Telex 557 409
Hong Kong	Assembly	Hong Kong	SEW-EURODRIVE LTD. Unit No. 801-806, 8th Floor Hong Leong Industrial Complex No. 4, Wang Kwong Road Kowloon, Hong Kong	Tel. 27 96-04 77 Telefax 27 95-91 29
Korea	Assembly Sales Service	Ansan-City, Kyungki-do	SEW-EURODRIVE Co., Ltd. R601-4, Banweol Industrial Estate Unit 1048-4, Shingil-Dong Ansan 425-120	Tel. (03 45)-4 92-80 51 Telefax (03 45)-4 92-80-56

Service and spare parts



Italy	Assembly Sales Service	Milano	SEW-EURODRIVE di R. Bickle & C. SAS Via Bernini 14 I-20020 Solaro (Milano)	Tel. (02) 96 79 97 71 Telefax (02) 96 79 97 81 Telex 322 823
Japan	Assembly Sales Service	Toyoda-cho	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no Toyoda-cho, Iwata-gun Shizuoka prefecture, 438	Tel. (053 83) 7 38 11-13 Telefax (053 83) 7 38 14
Malaysia	Assembly Sales Service	Johore	SEW-EURODRIVE Sdn. Bhd. 95, Jalan Seroja 39 81100 Johore Bahru Johore	Tel. (07) 3 54 57 07 + 3 54 94 09 Telefax (07) 3 54 14 04
Netherlands	Assembly Sales Service	Rotterdam	VECTOR Aandrijftechniek B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085, NL-3004 AB Rotterdam	Tel. (010) 4 46 37 00 Telefax (010) 4 15 55 52
New Zealand	Assembly Sales Service	Auckland	SEW-EURODRIVE NEW ZEALAND LTD. 1 Nandina-Avenue East Tamaki, Auckland P.O. Box 58-428, Greenmount, Auckland	Tel. (09) 2 74 56 27 + 2 74 00 77 Telefax (09) 2 74 01 65
Norway	Assembly Sales Service	Oslo	SEW-EURODRIVE A/S Solgaard skog 71 N-1539 Moss	Tel. (69) 24 10 20 Telefax (69) 24 10 40
Portugal	Assembly Sales Service	Coimbra	SEW-EURODRIVE, LDA. Apartado 15 P-3050 Mealhada	Tel. (031) 2 36 84 Telefax (031) 2 36 85
Singapore	Assembly Sales Service	Singapore	SEW-EURODRIVE PTE. LTD. Nº 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644 Boon Lay, P.O. Box 813, Singapore 916428	Tel. 86 21 701-705 Telefax 8 61 28 27 Telex 38 659
South Africa	Assembly Sales Service	Johannesburg	Gearedmotors of South Africa Pty. Ltd. Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext.2 Johannesburg 2013 P.O. Box 27032 2011 Benrose, Johannesburg	Tel. (27 11) 4 94 43 80 Telefax (27 11) 4 94 23 00
		Capetown	Gearedmotors of South Africa Pty. Ltd. No. 1 Cor. Voortrekker & Beach Roads P.O. Box 28, 7405 Maitland, Cape	Tel. (021) 51 09 87 Telefax (021) 5 11 44 58 Telex 576 062
		Durban	Gearedmotors of South Africa Pty. Ltd. 39 Circuit Road Westmead, Pinetown P.O. Box 10433, Ashwood 3605	Tel. (031) 7 00 34 51 Telex 622 407
Spain	Assembly Sales Service	Bilbao	SEW-EURODRIVE ESPAÑA, S.L. Oficinas Centrales, Talleres y Almacen E-48015 Bilbao	Tel. (9) 44 75 40 00 Telefax (9) 44 75 55 42
Sweden	Assembly Sales Service	Jönköping	SEW-EURODRIVE AB Gnejsvägen 6-8 S-55303 Jönköping	Tel. (036) 16 50 70 Telefax (036) 16 44 69 Telex 70 162
Switzerland	Assembly Sales Service	Basel	Alfred Imhof A.G. Jurastrasse 10 CH-4142 Münchenstein / Basel	Tel. (061) 4 17 17 17 Telefax (061) 4 17 17 00 Telex 963 231
USA	Manufacture Assembly Sales Service	Greenville	SEW-EURODRIVE INC. 1275 Old Spartanburg Highway Lyman, S.C. 29365 P.O. Box 518 Lyman, S.C. 29365	Tel. (864) 4 39-87 92 + 75 37 Telefax Manuf. (864) 9 49-30 39 Telefax Ass. (864) 4 39-05 66 Telex 805 550
		San Francisco	SEW-EURODRIVE INC. 30599 San Antonio Road P.O. Box 3910 Hayward, California 94544	Tel. (510) 4 87-35 60 Telefax (510) 4 87-63 81
	Assembly Sales Service	Philadelphia/PA	SEW-EURODRIVE INC. Pureland Ind. Complex 200 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. (609) 4 67-22 77 Telefax (609) 8 45-31 79
		Dayton	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. (513) 3 35-00 36 Telefax (513) 2 22-41 04 Telex 6 874 204
		Dallas	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. (214) 3 30-48 24 Telefax (214) 3 30-47 24
Venezuela	Assembly Sales Service	Caracas	Edif. Asea Brown Boveri Av. Diego Cisneros Los Ruices	Tel. (02) 2 39 64 33 + 2 38 24 22 + 2 38 24 11 Telefax (02) 2 39 63 83 + 2 39 58 34 Telex 25 249 + 25 265

We are available, wherever you need us.
Worldwide.

SEW-EURODRIVE right around the globe is
your competent partner in matters of power

transmission with manufacturing and assem-
ly plants in most major industrial countries.



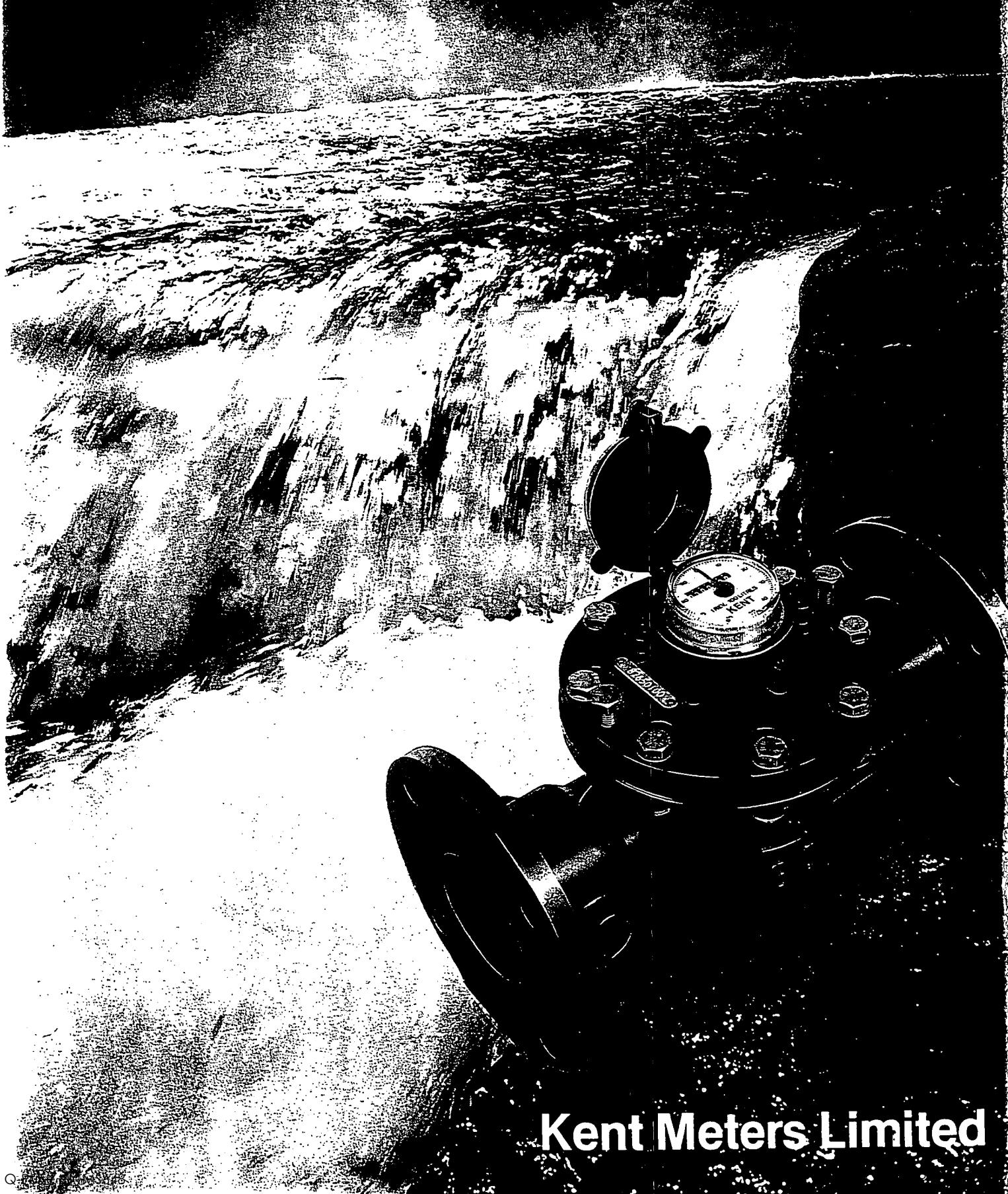
SEW
EURODRIVE

SEW-EURODRIVE GmbH & Co
P. O. Box 30 23 · D-76642 Bruchsal · Germany
Tel. +49-72 51-75-0 · Fax +49-72 51-75-1970
Telex 7 822 391

Hc... Open

HELIX 3000

• CREATING ITS OWN STANDARDS



Kent Meters Limited

HELIX 3000

CREATING ITS OWN STANDARDS

A new in-line helical vane (Woltmann) water meter with fundamental design changes provides the Helix 3000 with a dramatic increase in flow range performance. This meter not only conforms to relevant BS, ISO and EEC standards, but offers user benefits which greatly exceed these specifications.

Development Concept

An ongoing development programme has shown that throating the meter body results in very significant improvements to the maximum continuous rating and, of equal importance, to the minimum accurate flow. A new rotor bearing system is incorporated which guarantees a longer working life.

Operating efficiency is increased by allowing smaller meters than the pipeline size to be fitted with resulting economies in pit sizes and maintenance. The sustained accuracy at low flows will also give improved revenue earning capacity in Public Authority installations.

When used as a district meter with a Kent PU 10 or PU 100 pulse unit its low flow capability allows minimum night flows to be measured and, in some cases, if correctly sized, step tests may be possible.

To ensure optimum accuracy, particularly when continuous flows between Q_n and K_n are expected, we recommend that a length of straight pipe equal to 10 times the nominal meter size to be fitted directly to the meter inlet.

Lighter and Stronger

The body is cast in spheroidal graphite iron to BS 2789, 1973 420/12, which is 50% stronger than the grey cast iron previously used. This allows a thinner section casting, which is lighter in weight and offers corresponding benefits in handling and reduced transit costs.

Standard Features

Interchangeable measuring mechanisms. Can be installed in horizontal, vertical or inclined pipelines without loss of accuracy.

Lengths to ISO standards or Kent length for interchangeability with Helix IM or Helix 2000 meters.

The register can be rotated through 270° for ease of reading. The register lid has a locking facility and registration can be in litres (m^3), Imperial Gallons, US Gallons or Cubic Feet.

Maximum working pressure 16 Bar with maximum working water temperature 50°C.

Flanges can be drilled to the following specifications:

BS 10 tables C, D, E BS 4504 NP16

BS 4622 NP10/16 ANSI B16 1/5 Table 125/150 DIN 2532/3.

The magnetic drive between the measuring element and sealed register allows quick and easy attachment of Helix 2000 ancillary equipment.

Optional Features

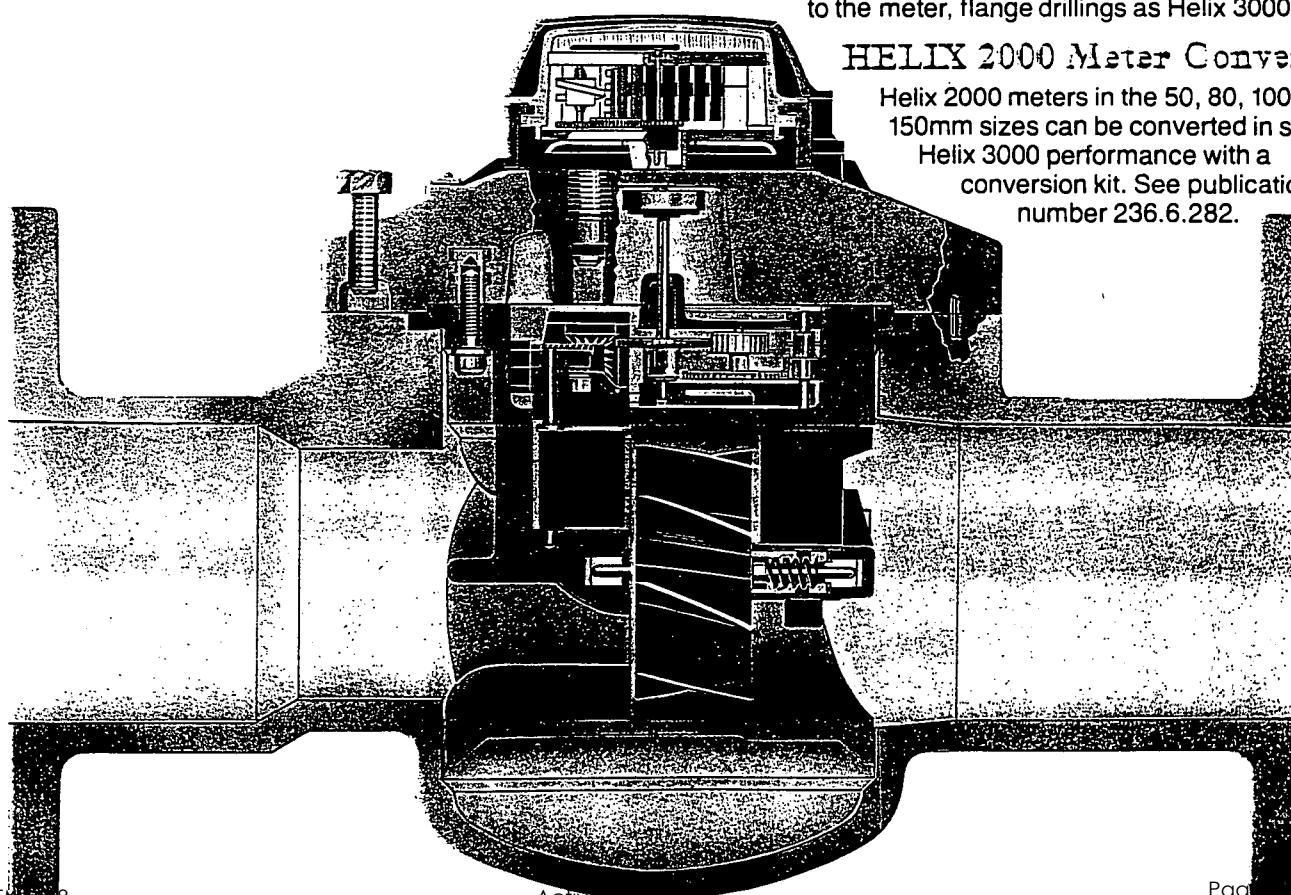
Kent pulse units with submersible or waterproof connections and three metres of cable are available in two versions, PU 10 providing 10 pulses, and PU 100 providing 100 pulses per revolution of the register centre pointer. They can be fitted, without interrupting the supply, for use with Kent Remote Totaliser, Kent Batching Unit.

Extended registers can be supplied in 150mm increments from 460mm to 1830mm.

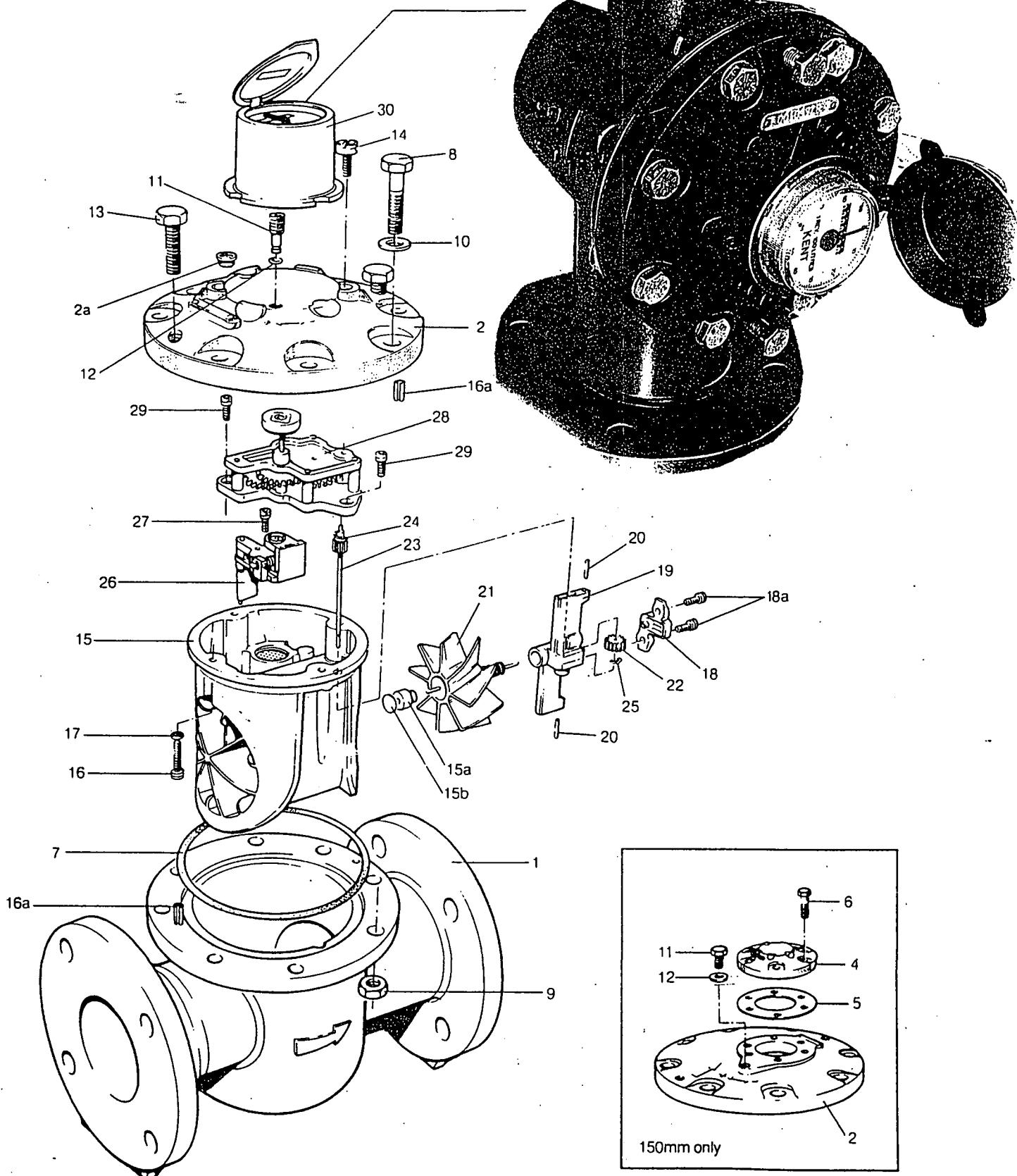
2000 strainer a low head-loss device designed to prevent large particles in the supply from causing damage to the meter, flange drillings as Helix 3000.

HELIX 2000 Meter Conversion

Helix 2000 meters in the 50, 80, 100 and 150mm sizes can be converted in situ to Helix 3000 performance with a conversion kit. See publication number 236.6.282.



KENT Helix 3000



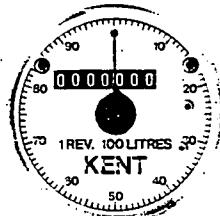
KENT HELIX 3000 WATER METER

Specification

Construction

Body: Top cover 150mm only	Spheroidal graphite iron to BS2789 1973 420/12
Top cover 40, 50, 65, 80, 100mm	Glass filled polyacetal resin
Joint plate 150mm only	Glass filled polyacetal resin
Measuring element	'Noryl' polyphenylene oxide
Rotor	Polypropylene
Rotor spindle	Tungsten carbide
Rotor bearings	PTFE compound
Rotor thrust bearings	Stainless steel and ceramic
Worm wheel spindle	Stainless steel
Drive magnet spindle	Stainless steel
Gearing	Polyacetal resin
Counter housing	Glass filled Polypropylene
Counter Lid	Poly Acetal
Body coating	Two pack epoxy enamel

Easy to Read Counter



Conforming to EEC requirements, the sealed register provides a clearly legible, seven figure straight reading counter incorporating a centre sweep hand which enables precise readings to be taken.

Standards ISO 4064 / BS 5728 / EEC Specification

Size of meter	mm	40	50	†	65	80	100	150
q _{max} maximum peak flow ±2%	m ³ /h	-	30	50	80	120	200	300
q _n Recommended continuous flow ±2%	m ³ /h	-	15	25	40	60	100	150
q _t Transitional flow ±2%	m ³ /h	-	4.5	7.5	8	12	30	-
q _{min} minimum flow ±5%	m ³ /h	-	1.2	2	1.2	1.8	4.5	-
Starting flow (approximately)	m ³ /h	-	0.27	0.36	0.36	0.33	1.06	-
Head loss at q _{max}	bars	-	0.20	0.04	0.09	0.08	0.09	-
Maximum dial registration	millions of m ³	-	1	1	1	10	10	-

HELIX 3000 Performance

Maximum peak flow ±2%	Kmax	m ³ /h	45	45	170	170	284	568
Kent recommended continuous flow ±2%	Kn	m ³ /h	36	36	136	136	227	455
Transitional flow ±2%	Kt	m ³ /h	0.91	0.91	1.40	1.40	2.27	4.55
Minimum flow +2% - 5%	Kmin	m ³ /h	0.68	0.68	1.14	1.14	1.59	3.41
Starting flow (approximately)	m ³ /h	0.27	0.27	0.36	0.36	0.33	1.06	-
Head loss at maximum flow	Kmax	bars	0.43	0.43	0.42	0.42	0.51	0.31
Maximum dial registration	millions of m ³	1	1	1	1	10	10	-
Centre pointer registration	litres	100	100	100	100	100	1000	-
Pulse Unit PU10	litres/pulse	10	10	10	10	10	100	-
Pulse Unit PU100	litres/pulse	1	1	1	1	1	10	-

Dimensions

Overall length Kent std.		311	311	368	413	483	502
Overall length BS5728/ISO4064	L1	mm	300	300	300	350	350
Height from centre line to bottom	H1	mm	80	86	99	106	123
Height from centre line to top Lid open	H2	mm	214	214	227	227	246
Lid closed	H3	mm	137	137	150	150	169
Width	L2 + L3	mm	188	188	188	201	230
Weight (approximately) BS5728/ISO 4064 length	kg	9.5	10.5	13.0	15	19.5	41.5

Each pulse unit adds 53mm to heights H2 & H3

Weight of each pulse unit 0.9Kg

* No ISO/BS specification for 40 mm meters.

† 60/65mm also available.

Alternative body materials.

Patent Pending

The Company's policy is one of continuous product improvement and the right is reserved to modify the specifications contained herein without notice.

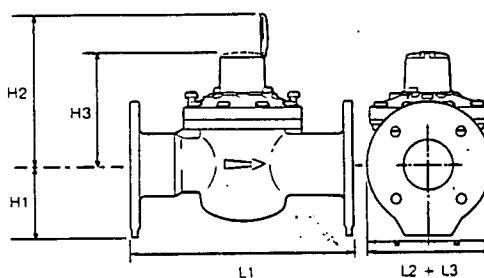
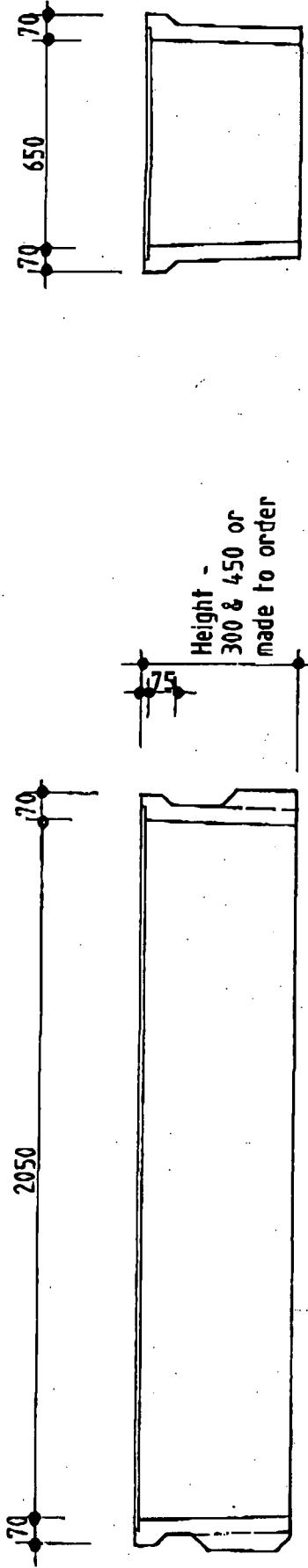


ABB
ASEA BROWN BOVERI

Kent Meters Limited

Pondwicks Road Luton
Bedfordshire England LU1 3LJ
Telephone Luton (0582) 402020
Telex 825367 KENMET G
Cable Kentmeters Luton
Telex 991015 ABB LUTON



SECTION A-A

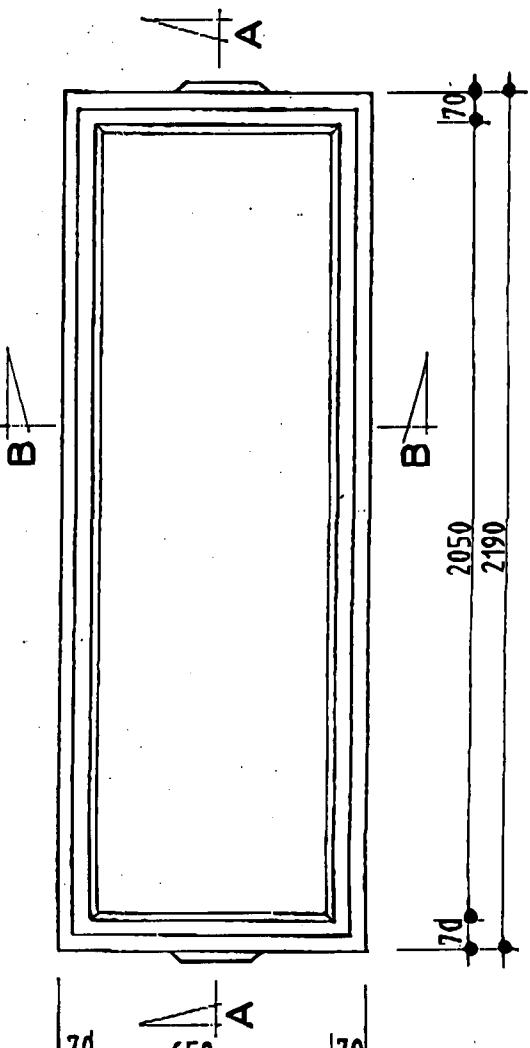


SECTION B-B

NOTE -
1. RISERS TO BE CONCRETED IN POSITION ON SITE.
2. CONCRETE DESIGN FOR RISER AS SPECIFIED FOR TANKS - DRG.NO.3001-10/1

REVISIONS	DATE
	DRG.NO. 3017-01/13

© PATENT NO.26250/84 NOT TO BE COPIED





KELLY PRECAST CONCRETE

07 38087488

ACN 009 797 004

Manufacturers of quality precast concrete products

Telephone: (07) 3808 1818 Facsimile: (07) 3808 7488 Mobile: 0417 626 795

QUOTATION

Attention

B.R.G.T.

Date

09 FEB 98

Name

BRISBANE CITY Council

Quote No:

JC 107

Address

.....

Your Reference No:

NORMAN GATE BRISBANE

Fax No:

34031887

Sender

John Gilbert

PH

34031837 - 0416098669.

Quotation valid to:

300A/L

QTY	PRODUCT DESCRIPTION	UNIT	TOTAL PRICE
1800			
2	500 LINE RISERS AT 300mm HIGH	240.00	480.00
2	LOW LINE RISERS AT 300m HIGH	390.00	780.00
3	STEEL LIDS TO SUIT 500LINE RISER CLASS A	—	200.00
3	STEEL LIDS TO SUIT LOW LINE RISER CLASS A	—	
<i>*Note* Height given as follows</i>			
<i>Drawing Details and the Above</i>			
		0.6W/6KM	30.00
		QUOTATION TOTAL	TBA.

Price Includes:

Concrete Strength:

Pallets:

Reinforcing:

Packaging:

Freight:

Ferrules:

Anchors:

Thank you for the opportunity to quote, please advise if you require any further information relevant to this quotation.

Yours faithfully,

John Gilbert

KELLY PRECAST CONCRETE PTY LTD

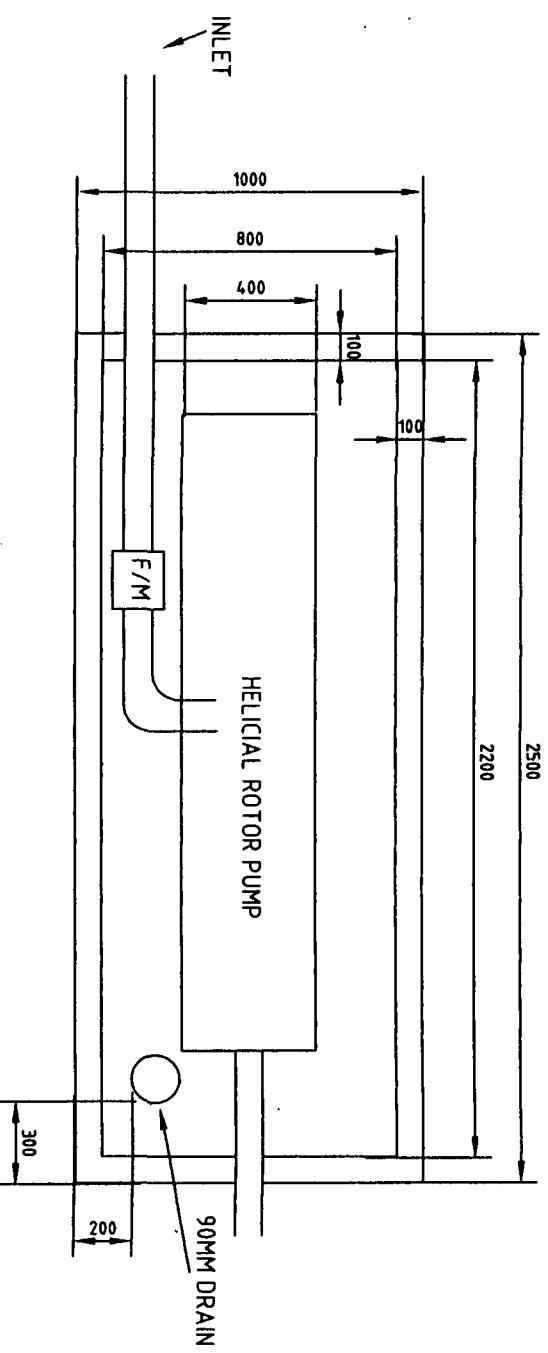
Factory Address: Cnr Pacific Highway & Centenary Road SLACKS CREEK Queensland 4127

Postal Address: P O Box 111 SPRINGWOOD QLD 4127

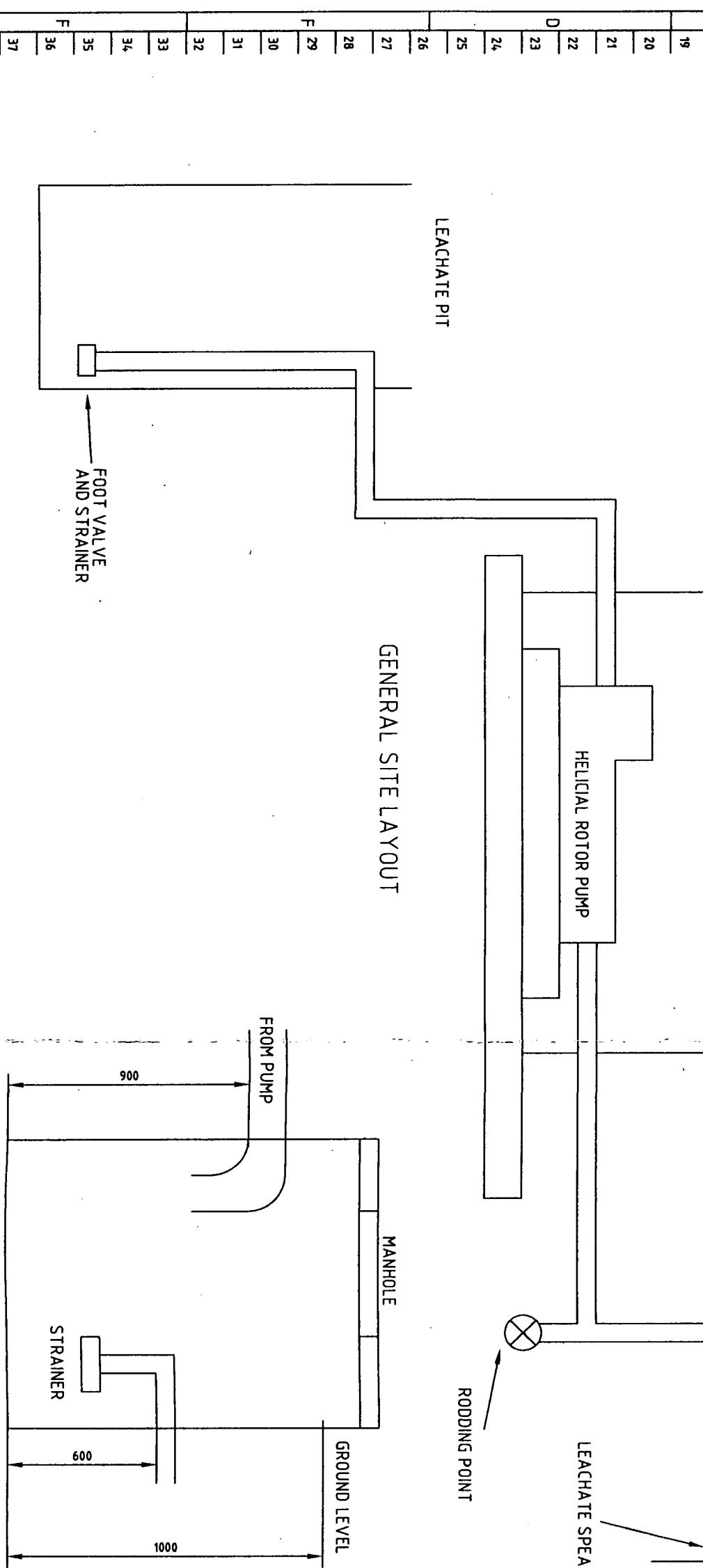
1	2	3	4	5	6	7	8
NOTES							

MONO PUMP - SEOXIMX1 R8/C138

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GENERAL SITE LAYOUT



1	2	3	4	5	6	7	8
NOTES							
MONO PUMP - SEOXIMX1 R8/C138							
F 1	F 2	F 3	F 4	F 5	F 6	F 7	F 8
F 9	F 10	F 11	F 12	F 13	F 14	F 15	F 16
F 17	F 18	F 19	F 20	F 21	F 22	F 23	F 24
F 25	F 26	F 27	F 28	F 29	F 30	F 31	F 32
F 33	F 34	F 35	F 36	F 37	F 38		
E 1	E 2	E 3	E 4	E 5	E 6	E 7	E 8
PROJECT							
TIP LEACHATE RE-CIRCULATION							
TITLE							
STANDARD MECHANICAL							
SCALE: N.T.S.	No. 1 OF 1 SHEETS						
DRAWING NO. 486/1/22-A AT 050	AMEND. 0						