

TUBVALSMASKIN K50

[Se produkt här](#)


| Model | P&P K50-1250 | P&P K50-600 | P&P K50-400 |
|---|------------------------|-------------------------|-------------------------|
| Free speed | 1250 rpm | 600 rpm | 400 rpm |
| Minimum torque | 1,58 Nm 14 in.Lbs | 2,49 Nm 22 in.Lbs | 5,00 Nm 44,15 in.Lbs |
| Maximum torque | 12,2 Nm 108 in. Lbs | 21,81 Nm 193 in. Lbs | 36,00 Nm 318 in. Lbs |
| Sound Pressure Level Lpa Sound Power Level Lwa | 83 dBa 94 dBa | 83 dBa 94 dBa | 73 dBa 74 dBa |
| Weight | 4,76 kg 10,5 Lbs | 4,76 kg 10,5 Lbs | 4,76 kg 10,5 Lbs |
| Length | 311 mm 12 1/4" | 311 mm 12 1/4" | 311 mm 12 1/4" |
| Side To Center Distance | 1 7/16" (36.5mm) | 1 7/16" (36.5mm) | 1 7/16" (36.5mm) |
| Minimum Recommended Hose Diameter (maximum 25 Foot Length) | 3/8" (9.5 mm) | 3/8" (9.5 mm) | 3/8" (9.5 mm) |
| Air consumption | 1700 l/min 60 cfm | 1700 l/min 60 cfm | 1700 l/min 60 cfm |
| Tube capacity | 3/4" 19 mm | 1" 25,4 mm | 1 1/4" 31,7 mm |
| Square size | 3/8" | 3/8" | 3/8" |
| Chucks | 3/8" opt. 1/2" | 3/8" opt. 1/2" | 3/8" opt. 1/2" |

Safety Recommendations

For your safety and the safety of others, read and understand the safety recommendations and operating instructions before operating this tool.

tool while balancing the weight of the tool for improved ergonomic applications.

ALWAYS WEAR PROTECTIVE EQUIPMENT

EYE AND FACE PROTECTION



HEARING PROTECTION



Hearing protectors are required in high noise areas, 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises and resonant structures, can substantially contribute to and increase the noise level in the area.



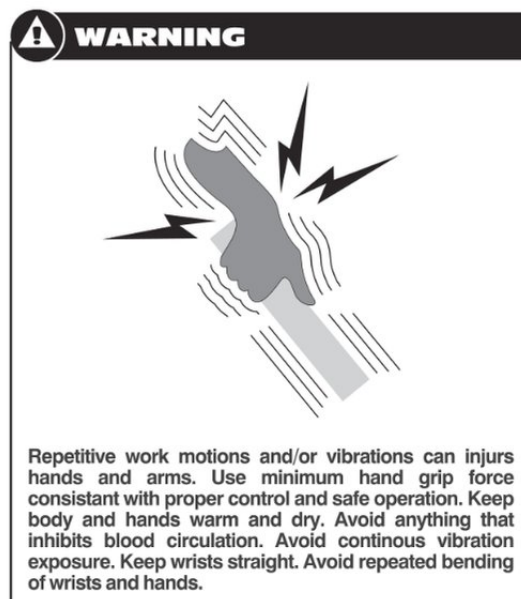
Moving components can entangle and enwrap. And can result in serious injuries. Never wear loose fitting clothes, gloves, ties or jewelry when working with or near any power tool with an exposed rotating shaft or spindle.



Tools with clutches can stall rather than shut-off if adjusted over the maximum power output of the tool, or if there is a drop in air pressure. Operator must then resist the stall torque until the throttle is released. Higher torque pneumatic tools, inline and right angle, are supplied with a torque reaction bar designed to work with the torque of the tool it is specified for. These bars can be braced against the work or other suitable points to absorb and relieve the operator of the torque reaction transmitted by the tool. Tool balance arms are also available to absorb the torque reaction of the



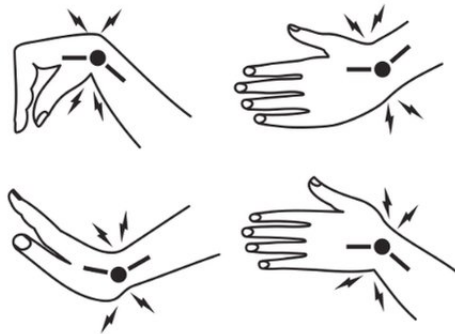
Some individuals are susceptible to disorders of the hands and arms when exposed to tasks, which involve highly repetitive motions and/or vibrations. Those individuals predisposed to vasculatory or circulatory problems may be particularly susceptible. Cumulative trauma disorders such as carpal tunnel syndrome and tendinitis can be caused or aggravated by repetitious, forceful exertions of the hands and arms. These disorders develop gradually over periods of weeks, months, and years.



Safety Recommendations - cont.

TASKS SHOULD BE PERFORMED IN SUCH A MANNER THAT THE WRISTS ARE MAINTAINED IN A NEUTRAL POSITION WHICH IS NOT FLEXED, HYPEREXTENDED, OR TURNED SIDE TO SIDE.

STRESSFUL POSTURES SHOULD BE AVOIDED AND CAN BE CONTROLLED THROUGH TOOL SELECTION AND WORK LOCATION.



Any user suffering from prolonged symptoms of tingling, numbness, blanching of the fingers, clumsiness or weakened grip, nocturnal pain in the hand, or any other disorder of the shoulders, arms, wrists, or fingers is advised to consult with a physician. If it is determined that the symptoms are job related or aggravated by movements and postures dictated by the job design, it may be necessary for the employer to take steps to prevent further occurrences. These steps might include, but are not limited to, repositioning the work piece or redesigning the workstation, reassigning workers to other jobs, rotating jobs, altering a work pace, and/or changing the type of tool used so as to minimize stress on the operator. Some tasks may require more than one type of tool to obtain the optimum operator/tool/task relationship.

The following recommendations will help reduce or moderate the effects of repetitive work motions:

- uses a minimum handgrip force consistent with proper control and safe operation;
- keep wrists as straight as possible;
- keep body and hands warm and dry.

Avoid anything that inhibits blood circulation

- smoking tobacco;
- cold temperatures;
- certain drugs.

Avoid highly repetitive movements of the hands and wrists, and continuous vibration exposure.



CAUTION

Wear respirator where necessary.

Use of this tool may produce hazardous fumes, particles, and/or dust. To avoid adverse health effects utilize adequate ventilation and/or a respirator. Read the material safety data sheet of any materials involved in the tube expansion process.

CAUTION

This KRAIS product is designed to operate on minimum 90 psig (6.2 bar), maximum 125 psig (8.6) air pressure. If the tool is properly sized and applied, higher air pressure is unnecessary. Excessive air pressure increases the loads and stresses on the tool parts, mandrels, rolls and cages and may result in premature wear and or breakage. Installation of a filter-regulator-lubricator in the air supply line ahead of the tool is required.

Before the tool is connected to the air supply, check the throttle for proper operation (i.e., the throttle moves freely and returns to the closed "OFF" position when released). Clear the air hose of accumulated dust and moisture. Be careful not to endanger adjacent personnel. Before removing a tool from service or changing sockets, make sure the airline is shut off and drained of air. This will prevent the tool from operating if the throttle is accidentally engaged. It is essential for safe operation that any operator of OUR TOOLS uses good balance, sure footing, and proper posture in anticipation of a torque reaction. Ensure that the operator's hands will not be wedged or pinched between the work and the tool when operating.

NOTE: ANY USE OF THIS TOOL OTHER THAN IT'S INTENDED PURPOSE COULD CAUSE MAJOR DAMAGE TO THE TOOL AS WELL AS POSE A RISK TO THE OPERATOR.

Service Instructions - cont.

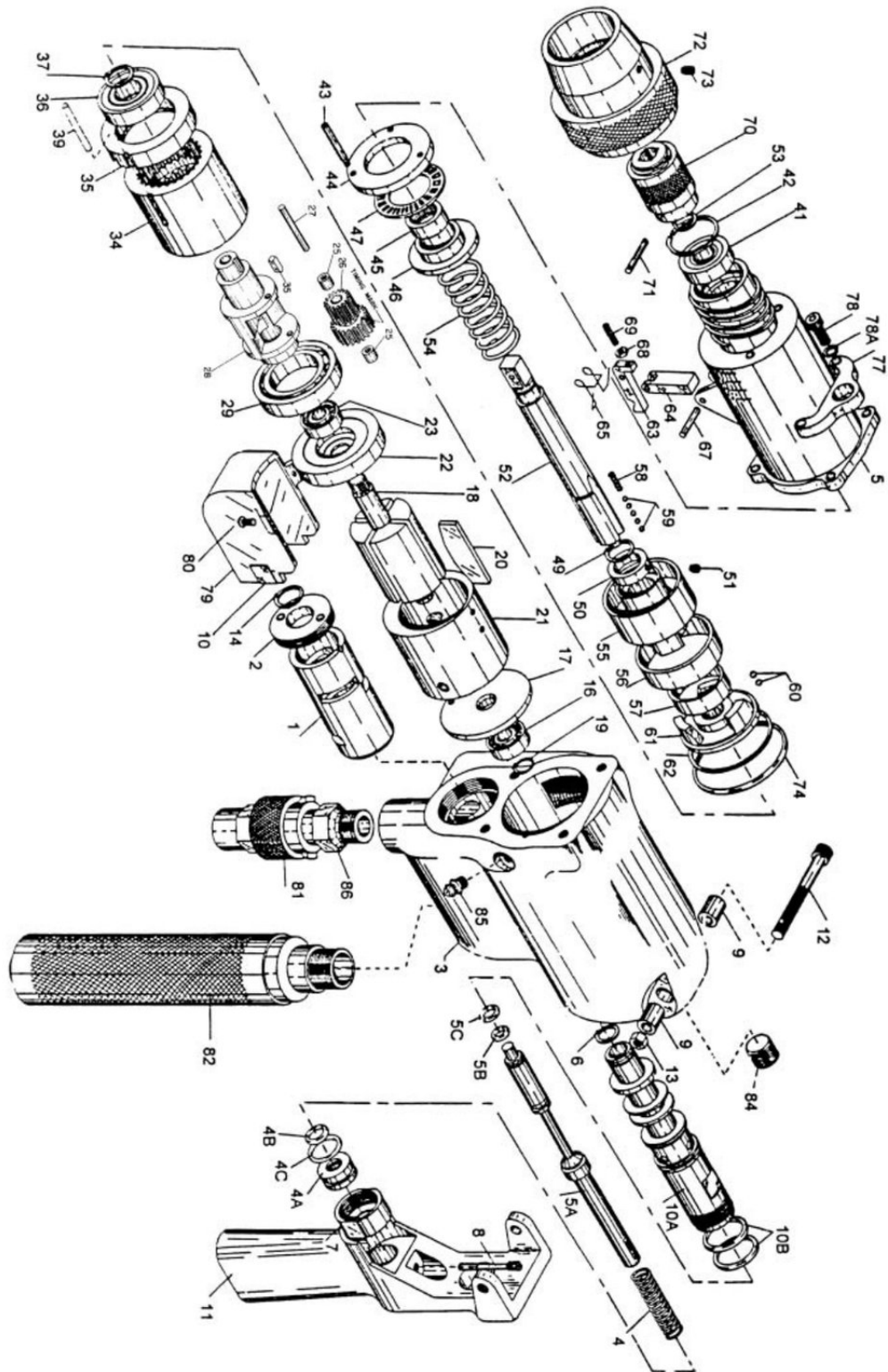
gear section from machine. Slide the motor package from the unit. Disassemble the motor package to check for wear in the cylinder liner and to examine the motor blades. Install new blades if the old blades show excessive wear. Install cylinder on the end plate; check blades (20) for proper placement; install the front bearing support (22). Slide the motor package in place, carefully dropping the dowel pin # 8010126 (assembled in the rear end of the cylinder) into the locating hole at the bottom of the case. The gear case of the 600 RPM tool is a standard two-stage planetary system and disassembly and reassembly of the unit is very simple. Slide the gears from the gear case, clean, inspect, re-grease and reinstall in the gear case. Slide the gear case into the housing and install dowel pin (39). Reinstall the torque unit on the motor case. (When installing the cam section on the motor housing, be sure to depress the trip so the fol-

lower will not jam on the top side of the operating cam while aligning front case with the motor.) Once the torque case is aligned in the motor housing and the screws are installed, the trip can be released. Before reinstalling the valve cover, push forward on the operating lever (11), and manually depress the trip. In depressing the trip with the finger, the valve (SA) will slide forward. Simulating the operation of the tool at shut-off. By pulling back on the lever (11), the outer valve that surrounds the valve (SA), should slide into the rearward position before valve (SA) moves within. If the outer valve is tight to the degree of sticking in the bushing (1) the motor would run forward rather than in reverse, causing over-rolling of joints. It is therefore essential that the outer valve be free in the bushing. After the above checks have been made, re-install the valve cover. Ensure adequate lubrication of all parts during reassembly.

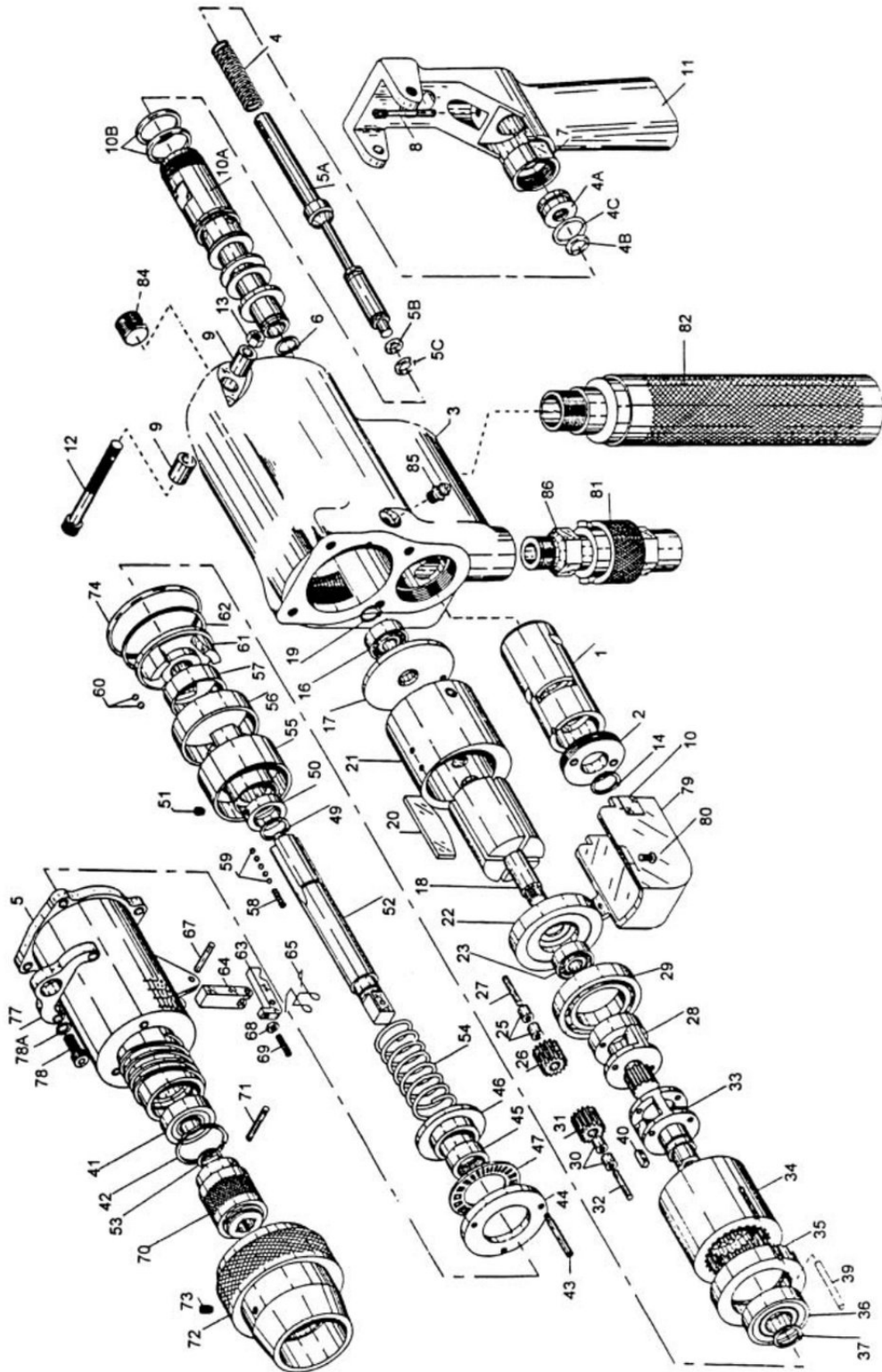
| MODEL ITEM | DESCRIPTION | K50-600 | | K50-1250 | | K50-400 | |
|---------------|-----------------|--------------------|-----|--------------------|-----|--------------------|-----|
| | | PART NUMBER | QTY | PART NUMBER | QTY | PART NUMBER | QTY |
| 1 | BUSHING | K-850-27 | 1 | K-850-27 | 1 | K-850-27 | 1 |
| 2 | LOCK NUT | K-850-19 | 1 | K-850-19 | 1 | K-850-19 | 1 |
| 3 | CASE | K-850-1-RE | 1 | K-850-1-RE | 1 | K-850-1-RE | 1 |
| *4 | SPRING | K-850-22 | 1 | K-850-22 | 1 | K-850-22 | 1 |
| *4A | SHAFT SEAL | K-850-70 | 1 | K-850-70 | 1 | K-850-70 | 1 |
| *4B | "O" RING | K-500-31 | 1 | K-500-31 | 1 | K-500-31 | 1 |
| *4C | "O" RING | K-RTV-65 | 1 | K-RTV-65 | 1 | K-RTV-65 | 1 |
| 5 | CAM CASE | K-900-2-A | 1 | K-900-2-A | 1 | K-900-2-A | 1 |
| *5A | VALVE | K-850-21-A | 1 | K-850-21-A | 1 | K-850-21-A | 1 |
| *5B | "O" RING | K-200-16 | 1 | K-200-16 | 1 | K-200-16 | 1 |
| *5C | "O" RING | K-2-011 | 1 | K-2-011 | 1 | K-2-011 | 1 |
| 6 | LOCK RING | K-402-S-24 | 1 | K-402-S-24 | 1 | K-402-S-24 | 1 |
| 7 | CAP | K-850-26 | 1 | K-850-26 | 1 | K-850-26 | 1 |
| 8 | PIN | K-850-34 | 1 | K-850-34 | 1 | K-850-34 | 1 |
| 9 | BUSHING | K-850-1-B | 2 | K-850-1-B | 2 | K-850-1-B | 2 |
| 10 | TRIP GAUGE | K- | 1 | K- | 1 | K- | 1 |
| 10A | DIRECTION VALVE | K-850-28-A | 1 | K-850-28-A | 1 | K-850-28-A | 1 |
| 10B | "O" RING | K-2-020 | 2 | K-2-020 | 2 | K-2-020 | 2 |
| 11 | LEVER | K-850-1-L | 1 | K-850-1-L | 1 | K-850-1-L | 1 |
| 12 | LEVER PIN | K-850-35 | 1 | K-850-35 | 1 | K-850-35 | 1 |
| 13 | SELF LOCK NUT | K-1/4"-28 or (M-6) | 1 | K-1/4"-28 or (M-6) | 1 | K-1/4"-28 or (M-6) | 1 |
| 14 | TRU-ARC RING | K-402-23 | 1 | K-402-23 | 1 | K-402-23 | 1 |
| 15 | | | | | | | |
| 16 | BEARING | K-300-G-29 | 1 | K-300-G-29 | 1 | K-300-G-29 | 1 |
| 17 | REAR THRUST | K-1000-74 | 1 | K-1000-74 | 1 | K-1000-74 | 1 |
| 18 | ROTOR | K-1000-73-700-S | 1 | K-1000-73-S | 1 | K-1000-73-700-S | 1 |
| 19 | TRU-ARC RING | K-500-24 | 1 | K-500-24 | 1 | K-500-24 | 1 |
| 20 | BLADES | K-1000-72-S | 4 | K-1000-72-S | 4 | K-1000-72-S | 4 |
| 21 | CYLINDER | K-1000-71-S | 1 | K-1000-71-S | 1 | K-1000-71-S | 1 |
| 22 | FRONT THRUST | K-900-7-45 | 1 | K-900-7 | 1 | K-900-7-45 | 1 |
| 23 | BEARING | K-400-13 | 1 | K-300-G-29 | 1 | K-400-13 | 1 |

| MODEL | | K50-600 | | | K50-1250 | | | K50-400 | |
|-------|---------------------|---------------|-----|--|---------------|-----|--|----------------|-----|
| ITEM | DESCRIPTION | PART NUMBER | QTY | | PART NUMBER | QTY | | PART NUMBER | QTY |
| 24 | | | | | | | | | |
| 25 | BEARING | K-400-16 | 4 | | K-400-16 | 4 | | K-400-16 | 4 |
| 26 | PLANET GEAR | K-500-12-30 | 2 | | K-900-12 | 2 | | K-500-12-400 | 2 |
| 27 | PLANET PIN | K-500-18 | 2 | | K-900-18 | 2 | | K-500-18 | 2 |
| 28 | SPIDER | K-900-25-45-1 | 1 | | K-900-25 | 1 | | K-900-25-400-1 | 1 |
| 29 | BEARING | K-1000-88 | 1 | | K-900-3 | 1 | | K-1000-88 | 1 |
| 30 | BEARING | K-400-16 | 6 | | N/A | | | K-400-16 | 6 |
| 31 | PLANET GEAR | K-500-12-40 | 3 | | N/A | | | K-500-12-400 | 3 |
| 32 | PLANET PIN | K-500-18 | 3 | | N/A | | | K-500-18 | 3 |
| 33 | GEAR SPIDER | K-900-25-45 | 1 | | N/A | | | K-900-25-400 | 1 |
| 34 | GEAR HAUSING | K-900-20-45 | 1 | | K-900-20 | 1 | | K-900-20-400 | 1 |
| 35 | BEARING SUPPORT | K-900-58-45 | 1 | | K-900-58 | 1 | | K-900-58-45 | 1 |
| 36 | REAR BEARING | K-700-9 | 1 | | K-700-7 | 1 | | K-700-9 | 1 |
| 37 | TRU-ARC RING | K-900-15 | 1 | | K-900-15 | 1 | | K-900-15 | 1 |
| 38 | | | | | | | | | |
| 39 | PIN | K-900-19 | 1 | | K-900-19 | 1 | | K-900-19 | 1 |
| 40 | CAM KEY | K-900-53 | 1 | | K-900-53 | 1 | | K-900-53 | 1 |
| 41 | BEARING | K-500-13 | 1 | | K-500-13 | 1 | | K-500-13 | 1 |
| 42 | TRU-ARC RING | K-900-6 | 1 | | K-900-6 | 1 | | K-900-6 | 1 |
| 43 | PRESSURE PIN | K-900-10 | 3 | | K-900-10 | 3 | | K-900-10 | 3 |
| 44 | PRESSURE PAD | K-900-11 | 1 | | K-900-11 | 1 | | K-900-11 | 1 |
| 45 | BEARING | K-1000-64 | 1 | | K-1000-64 | 1 | | K-1000-64 | 1 |
| 46 | SPRING GUIDE | K-900-13 | 1 | | K-900-13 | 1 | | K-900-13 | 1 |
| 47 | FRONT BEARING | K-900-14 | 1 | | K-900-14 | 1 | | K-900-14 | 1 |
| 48 | | | | | | | | | |
| 49 | TRU-ARC RING | K-900-15 | 1 | | K-900-15 | 1 | | K-900-15 | 1 |
| 50 | LOCK RING | K-900-45 | 1 | | K-900-45 | 1 | | K-900-45 | 1 |
| 51 | SOC SET SCREW | K-8-32X1/8" | 1 | | K-8-32X1/8" | 1 | | K-8-32X1/8" | 1 |
| 52 | SPINDEL | K-900-4 | | | K-900-4 | | | K-900-4 | |
| 53 | TRU-ARC RING | K-900-5 | 1 | | K-900-5 | 1 | | K-900-5 | 1 |
| 54 | SPRING | K-850-44 | 1 | | K-850-44 | 1 | | K-850-44 | 1 |
| 55 | OPERS TING CAM | K-900-49 | 1 | | K-900-49 | 1 | | K-900-49 | 1 |
| 56 | RETAINER | K-1000-52 | 1 | | K-1000-52 | 1 | | K-1000-52 | 1 |
| 57 | BALL RETAINER | K-900-52 | 1 | | K-900-52 | 1 | | K-900-52 | 1 |
| 58 | GUIDE SPRING | K-900-47 | 3 | | K-900-47 | 3 | | K-900-47 | 3 |
| 59 | STEEL BALL | K-900-48 | 15 | | K-900-48 | 15 | | K-900-48 | 15 |
| 60 | STEEL BALL | K-1000-48 | 6 | | K-1000-48 | 6 | | K-1000-48 | 6 |
| 61 | CAM | K-900-54 | 1 | | K-900-54 | 1 | | K-900-54 | 1 |
| 62 | TRU-ARC RING | K-900-24 | 1 | | K-900-24 | 1 | | K-900-24 | 1 |
| 63 | TRIP | K-850-18 | 1 | | K-850-18 | 1 | | K-850-18 | 1 |
| 64 | FOLLOWER | K-900-17 | 1 | | K-900-17 | 1 | | K-900-17 | 1 |
| 65 | SPRING | K-1000-16 | 1 | | K-1000-16 | 1 | | K-1000-16 | 1 |
| 66 | | | | | | | | | |
| 67 | PIN | K-1000-37 | 1 | | K-1000-37 | 1 | | K-1000-37 | 1 |
| 68 | HEX NUT | K-6-32 | 1 | | K-6-32 | 1 | | K-6-32 | 1 |
| 69 | SOC SET SCREW | K-6-32X1/2" | 1 | | K-6-32X1/2" | 1 | | K-6-32X1/2" | 1 |
| 70 | QUICK CHANGE CHUCK | K-850-375 | 1 | | K-850-375 | 1 | | K-850-375 | 1 |
| 71 | SPLIT PIN | K-1/8"X7/8" | 1 | | K-1/8"X7/8" | 1 | | K-1/8"X7/8" | 1 |
| 72 | ADJUSTING NUT | K-900-43 | 1 | | K-900-43 | 1 | | K-900-43 | 1 |
| 73 | NYLON TIP SET SCREW | K-8-32X3/16 | 1 | | K-8-32X3/16 | 1 | | K-8-32X3/16 | 1 |
| 74 | "O" RING | K-2-033 | 1 | | K-2-033 | 1 | | K-2-033 | 1 |
| 75 | | | | | | | | | |
| 76 | | | | | | | | | |
| 77 | BRACKET | K-900-56 | 1 | | K-900-56 | 1 | | K-900-56 | 1 |
| 78 | BUTTON HD CAP SCREW | K-M-6X22 | 2 | | K-M-6X22 | 2 | | K-M-6X22 | 2 |
| 78 | BUTTON HD CAP SCREW | K-M-6X16 | 2 | | K-M-6X16 | 2 | | K-M-6X16 | 2 |
| 78A | MED. LOCK WASHER | K-10 | 4 | | K-10 | 4 | | K-10 | 4 |
| 79 | COVER | K-850-1-C | 1 | | K-850-1-C | 1 | | K-850-1-C | 1 |
| 80 | BUTTON HD CAP SCREW | K-6-32X3/8" | 2 | | K-6-32X3/8" | 2 | | K-6-32X3/8" | 2 |
| 80 | EX TYPE LOCK WASHER | K-6 | 2 | | K-6 | 2 | | K-6 | 2 |
| 81 | QC NIPPLE | K-HOF | 1 | | K-HOF | 1 | | K-HOF | 1 |
| 82 | CLOSE NIPPLE | K-1/2" | 1 | | K-1/2" | 1 | | K-1/2" | 1 |
| 83 | MUFFLER COMPLETE | K-A-850-61-MF | 1 | | K-A-850-61-MF | 1 | | K-A-850-61-MF | 1 |
| 84 | PLUG | K-1000-42 | 1 | | K-1000-42 | 1 | | K-1000-42 | 1 |
| 85 | ZERK | K-1/4"-28 | 1 | | K-1/4"-28 | 1 | | K-1/4"-28 | 1 |
| 86 | QC COUPLER | K-EZ-308F-8L | 1 | | K-EZ-308F-8L | 1 | | K-EZ-308F-8L | 1 |
| 100 | REACTION BAR | - | - | | - | - | | K-50-400 | 1 |

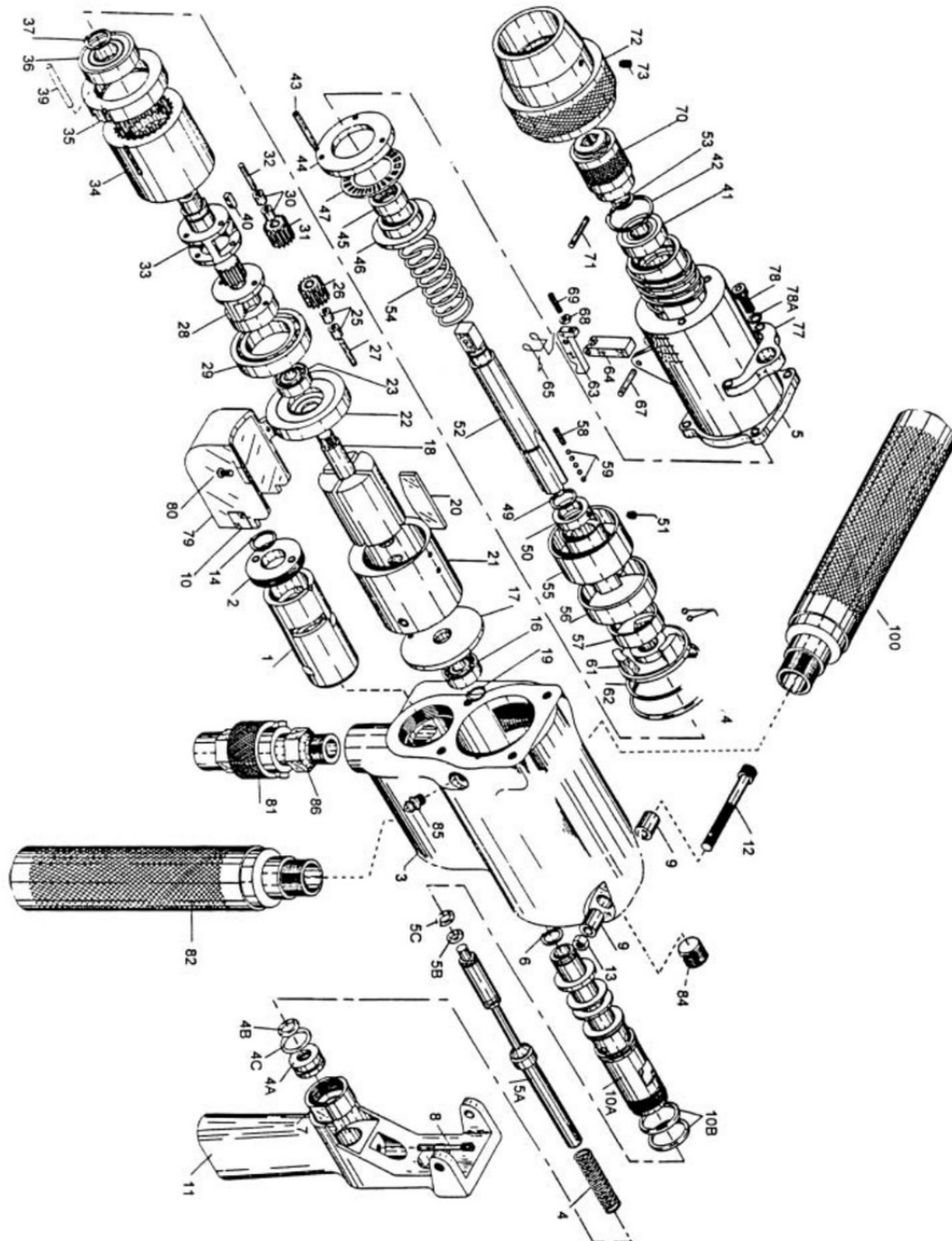
Push&Pull K50-1250



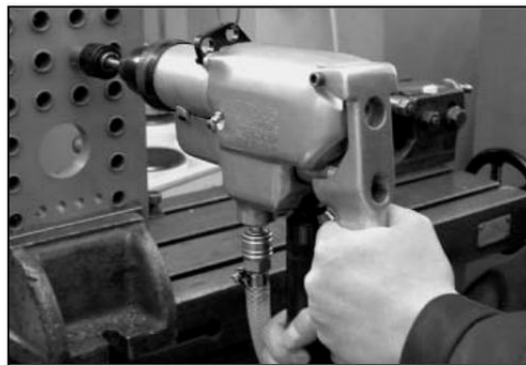
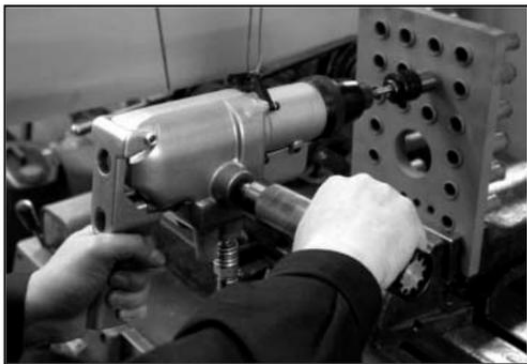
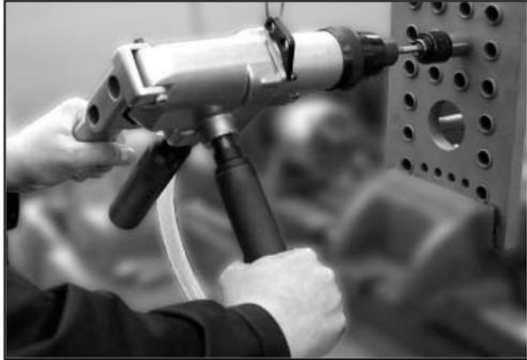
Push & Pull K50-600



Push&Pull K50-400



Push & Pull Use Samples



Tube Rolling Procedure

The following suggestions are offered to aid in the setting up process for rolling tubes into a heat exchanger, condenser or boiler. A good start insures good result.

A) Pick 3 to 5 tubes in the unit to be rolled and complete the worksheet on the back of this page. It is important that the measurements used in the set-up are actual. Never use average dimensions.

B) After the worksheet is finished, start setting up the torque control motor by test rolling the first of the tubes. The first test roll must be done with the rolling motor set for low torque to avoid over rolling.

C) Measure the tube I.D. after rolling if more expansion is needed increase the torque setting on the control and roll the second tube. Check the finished I.D. This step may have to be repeated on tube #3 by this time, the torque setting should be corrected.

D) Roll tubes 4 and 5 to double check the set-up. These tubes should measure as calculated within the allowable tolerance.

- Condenser tubes 10 to 17 ga (3.4mm to 1.5mm \pm 0.001" / 0.025mm) Condenser
- tubes 18 to 24 ga (1.25mm to 0.5mm \pm 0.0005" / 0.012mm) Boiler tubes 4 to 10 ga (6.5mm to 3.4mm \pm 0.002" / 0.05mm)
- Boiler tubes 12 to 18 ga (2.8 mm to 1.25 mm \pm 0.001" / 0.025mm)

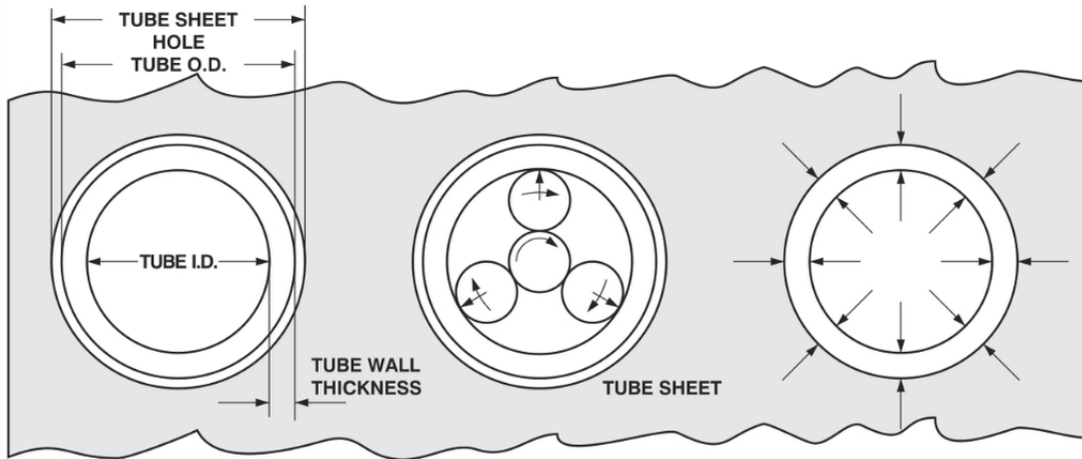
IMPORTANT: REROLL ALL THE TEST TUBES THAT WERE UNDER SIZE.

The rolling control is now set and ready to roll the rest of the tubes in the unit. The use of the torque control system will ensure the uniform tightness of all tubes.

IMPORTANT NOTE: TO ENSURE THE BEST TOOL LIFE AND THE HIGHEST QUALITY TUBE TO TUBE SHEET CONTACT, PERIODIC CLEANING OF THE EXPANDER IS NECESSARY. PROPER LUBRICATION OF THE ROLL MANDREL AND THRUST BEARING IS A MUST!

LUBRICATION OF THE TUBE EXPANDERS

A quality lubrication oil, SAE#10 grade is popular for Tube expansion in normal tube size. For sever rolling of heavy gauge tubes or alloy materials a Viscous heavy oil of approximately SAE#60 is recommended. We can also supply water-soluble lubricant, our part number KAT-128.



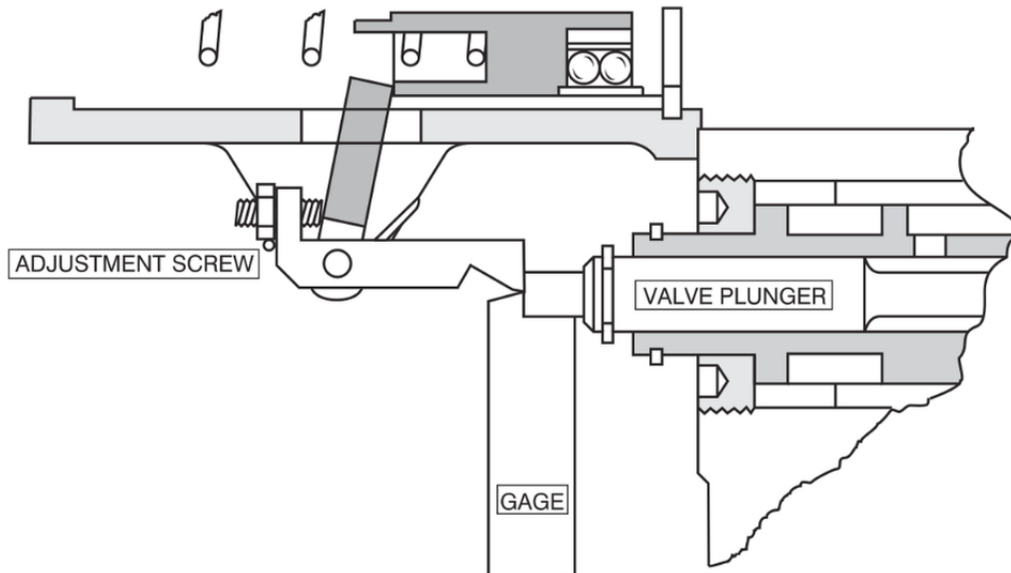
CONDENSER TUBES.....5% REDUCTION
 BOILER TUBES.....10% REDUCTION

TESTS PROVE THAT SATISFACTORY JOINTS ARE
 PRODUCED USING THE ABOVE LISTED
 PERCENTAGE OF TUBE WALL REDUCTION.

Tube sheet hole (measure)..... Tube *h*
 O.D. (measure)..... *b*
 Clearance..... $c = h - b$
 Tube ID (measure)..... *d*
 Wall thickness..... $w = b - d$
 5% wall reduction..... $f = (0.05 \times w)$
 Finished I.D..... $g = (c + d + f)$

| STEP | TUBE # | Example | 1 | 2 | 3 | 4 | 5 |
|------|----------------------|------------------|---|---|---|---|---|
| 1 | Tube Sheet Hole | .760" (19,3 mm) | | | | | |
| 2 | - Tube O.D. | .750" (19,05 mm) | | | | | |
| 3 | = Clearance | .010" (2,54 mm) | | | | | |
| 4 | + Tube I.D. | .620" (15,74 mm) | | | | | |
| 5 | Wall Thickness (TOT) | .130" (3,3 mm) | | | | | |
| 6 | + 5% Wall Reduction | .006 (0,152 mm) | | | | | |
| 7 | = Finished I.D. | .636 (16,15 mm) | | | | | |

Model K50-... Trip Adjustment



The Trip Mechanism on our Model P&P K50- 600, P&P K50-400 and P&P K50-1250, has an overall confined travel of 0,118" (3mm). For proper operation, the trip mechanism should be set to a maximum engagement of 0,062" (1,57mm) with the abutting valve plunger. (See Diagram) The above adjustment allows the valve to shut off at the mid-point of the total trip movement of the tool.

We recommend that this adjustment be made with the tool running in the clockwise direction, with the Torque Adjustment Nut on digit 5 and no load being placed on the tool. Our Adjustment Gauge is recommended to ensure the correct set up of the trip mechanism (See drawing)

W a r r a n t y

Warrants the pneumatic rolling motors model P&P K50-600, P&P K50-400 and P&P K50-1250 for one (1) year from the shipping date, against defects in material and workmanship. For warranty evaluation, contact your local supplier. Tools returned for warranty evaluation have to be shipped prepaid to your nearest distributor or our company. If returned product is found to be covered under warranty, it will be returned shipped prepaid in the same way as received.



Przedsiębiorstwo Produkcyjno-Remontowe KRAIS
Poland, 55-106 Zawonia, Czachowo 15
tel. +48 71 312 05 96, fax +48 71 387 03 32
<http://www.krais.pl>, email: expanders@krais.pl