

# Technical leaflet



**KOR-108 – Reduction rolling machine for tubular heating elements**

### ***Technical description***

GRANLUND reducing rolling mill type KOR-108 is a new type of rolling mill. It has a stepless controlled rolling speed, using only one AC-motor. New gearboxes provide a very silent operation. It is available with constant speed or speed gradient ratio between the roll pairs. It is equipped with a PLC which can control feeding and receiving equipment. Available both in right or left versions depending on the requirement. KOR-108 is easy to service and designed to work with existing GRANLUND bearing box assemblies. If several bearing box assemblies are available, changeover time is approximately 15 minutes compared to around six hours when changing the rolls between different dimensions. The production speed is higher compared to the traditional KOR-8 and KOR-12 machines. Due to the controlled rolling speed, straighter elements, better looking surface and perfectly round element will be achieved. This together with longer lasting steel or carbide rollers makes the KOR-108 a perfect addition to the existing machines.

Roll pass design is principally "oval to oval" with the same degree of reduction in each pair of rolls, and circular grooves in the last two pairs give the tubes a round shape after reduction. Rolls are manufactured of hardened alloyed steel or of steel with sintered carbide rings. Sintered carbide rolls offer up to 3-5 times longer service than steel rolls. Consequently, it is advisable to order sintered carbide rolls for frequently occurring tube sizes with large volumes. Our latest development of the roll profile ensures good and stable, straight and round elements. After the last pair of rolls, the tubes pass a roll-straightener ("Turk's head"). After that, a system of motor driven rubber rolls, placed outside the mill, draws the tubes from the mill.

Bearing box assemblies from previous KOR-108 or KOR-8 machines can also be used in new machines to ensure a cost-effective solution.

### ***Construction***

The machines consist of:

1. Machine stand with motors and transmission
2. Transmission shafts
3. Bearing box assembly with rolls (ground steel or tungsten carbide)
4. Simple type of straightening device (other straighteners available on request)
5. Equipment to help the tube exit the rolling mill efficiently
6. Operator panel
7. Electrical Cabinet

The guide bushings are made of plastic. Brass bushings may give discoloration of the tube and stainless bushings may lead to "welding".

The diameter ovality tolerance on the reduced elements on a new machine (new rolls) can be estimated to max  $\pm 0,04$  mm, but is normally better.

The capacity (elements per hour) can be estimated to: rolling speed / (element length + safety distance)

**Technical data**

Number of rolls: 8 pairs  
Min tube diameter: 5 mm  
Max tube diameter:  
steel rolls 16 mm ,  
sintered carbide rolls 13 mm  
Min tube length: 115 mm  
Max diameter reduction: 16%  
Rolling speed: 10-50 m/min stepless control  
Electrical connection: 3 • 230 V or 3 • 400 V, 50 Hz  
Power: 11 kW  
For KOR-108, a 50 A fuse is recommended for 3 • 230 V and 35 A fuse for 3 • 400 V.

**Required information before ordering**

1. Initial and final tube diameter (wall thickness)
2. Grade of tube material
3. Electrical supply
4. Supplementary bearing box assembly required
5. Sintered carbide or steel rolls

To be supplied by customer before delivery: about 20 unreduced elements for final adjustments.

**Optional equipment**

- KOP – Marking device
- KOM – Lay-off table
- KOI – Automatic feeding equipment
- KRO – Advanced straightening device
- Frequency controlled speed
- Extra bearing box assembly

Please ask your representative for an additional offer for optional equipment

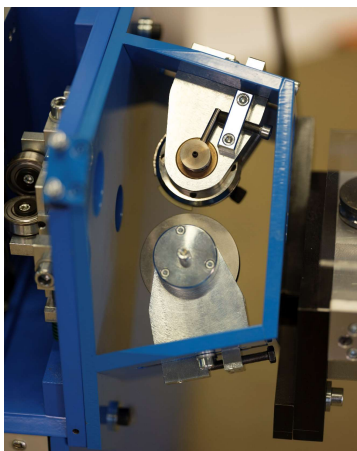


Figure 1- Example of KOP mounting

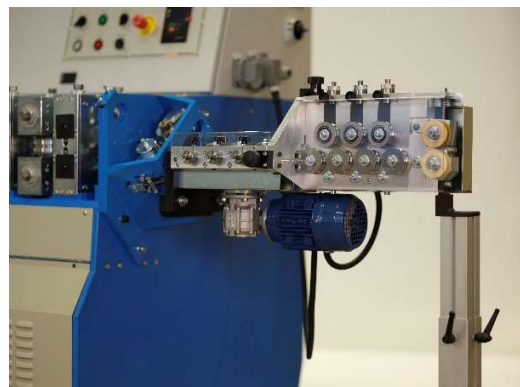


Figure 2 - Example of combination KOP and KRO