OIL-AIR LUBRICATION SYSTEM FOR ROLLING MILLS

APPLICATION
The lubrication pump for rolling mills with an oil-air system is used for permanent, regular lubrication and cooling of bearings with an oil-air mixture. The change-over valve OVS 4 mixes the oil with the pressure air flow into a mixture, which is distributed by the pipeline to the individual lubricated points. The oil-air mixture lubricates the lubricated points and cools them at the same time and makes overpressure in the lubricated points to prevent impurities from entering from the surrounding environment.

DESCRIPTION
The basic parts of the oil-air lubrication system for lubricating rolling mills are lubrication pumps (e.g. Z2, UCD), automatic control device and an oil-air base plate.

The main parts of the base oil-air plate are change-over valves OVS 4, two-line dosing devices DDA-P-Zn 04-2,5, hand stopcock RUK, one-way valves and interconnecting pipe unions. The device creates a compact unit, which can be easily disconnected, disassembled and replaced with a reserve device in case of a failure. It is to be attached using four screws through holes Ø10mm in the base plate. The pressure oil source for this device is a two-line lubrication pump, preferably with a hydraulic change-over valve whose outlets are to be interconnected using pipelines, hydraulic hoses with a hand stopcock RUK. Two two-line dosing devices DDA-P-Zn 04-2,5 are connected in series to the hand stopcock. Outlets from the two-line dosing devices are interconnected with one-way valves, which are connected to the change-over valves OVS 4. The one-way valves serve to prevent the pressure air from entering from the change-over valve into the two-line dosing devices and possibly into the whole lubricating circuit. The pressure air is lead into the first change-over valve using a pipe or a flexible hose connected to the neck of the pipe union with the connecting thread M26x1.5. The air flows through this change-over valve and the interconnecting union into the second change-over valve.

FUNCTION
The pressure air flowing into the output hole of the change-over valve OVS 4 breaks the delivered oil away from the oil inlet and makes the oil-air mixture in the widened part of the output hole. The quantity of the delivered air is adjusted using an adjusting screw. After the required air quantity is adjusted, the adjusting screw is to be locked by a safety nut.

INSTALLATION, SERVICE AND MAINTENANCE
The lubrication pump does not require any special maintenance. Repairs on the lubrication pump must be carried out only when the pressure air supply is disconnected.
The operator or a responsible person designated by the user must carry out a visual inspection of the outside of the lubrication pump every time the device is put into operation, primarily inspection of connections of the hydraulic and pneumatic circuit.

**TECHNICAL PARAMETERS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum oil pressure</td>
<td>100 bar</td>
</tr>
<tr>
<td>Air pressure</td>
<td>10 bar</td>
</tr>
<tr>
<td>Lubricant</td>
<td>oil 20 to 400 mm² s⁻¹</td>
</tr>
<tr>
<td>Oil-air mixture dose</td>
<td>adjustable 0 to 18 m³ hour⁻¹</td>
</tr>
<tr>
<td>Inlet and outlet union (neck) – air</td>
<td>M26x1.5</td>
</tr>
<tr>
<td>Inlet and outlet union (neck) – oil</td>
<td>M16x1.5</td>
</tr>
<tr>
<td>The outlet oil pipe union (neck) + air</td>
<td>M16x1.5</td>
</tr>
<tr>
<td>Temperature of the working environment</td>
<td>-25 to 80°C</td>
</tr>
<tr>
<td>Weight</td>
<td>21.8 kg</td>
</tr>
</tbody>
</table>

*Fig. 1 Mixing device OVS 4*
Fig. 2 Two-line dosing device DDA-P-Zn 04-2.5