



COLD CONTINUOUS DIE ROLLER ROLLING OF THE EXTRA-THINWALLED TUBES

Joining the advantages of the die and continuous rolling opens the great possibilities in development of the die rolling processes.

New processes of continuous die roller tube rolling have been developed in the National Metallurgical Academy in the metal forming department, as well as corresponding roll stands for different mills of the cold tube roller rolling (CTRR) (Fig. 1 and 2, the table).

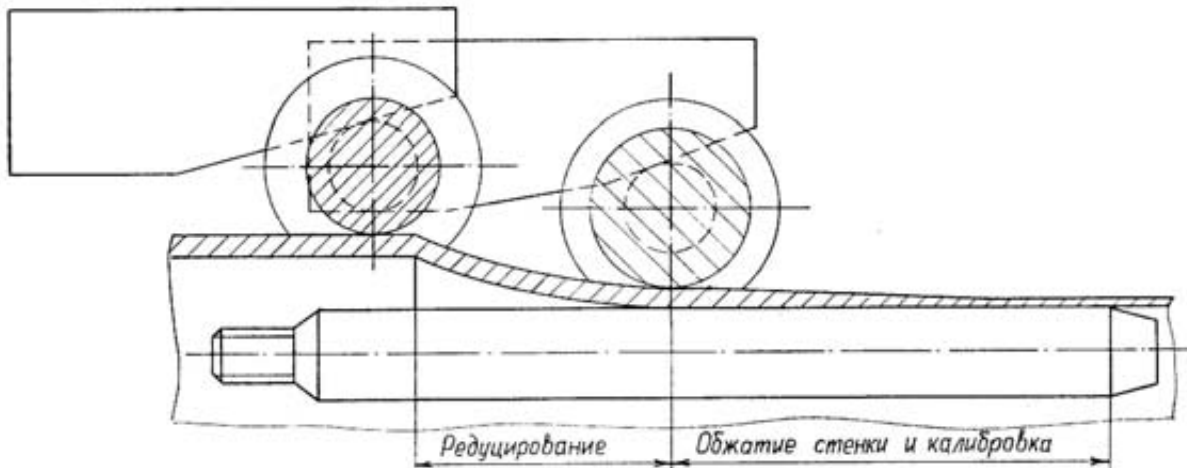


Figure 1. Process of continuous die two-row roller rolling

Two-row processes and corresponding roll stands have been developed for mills CTRR 8-15, 6-15, 15-30, 30-45, 30-60. Three-row process and corresponding roll stand have been developed for conditions of the mill CTRR 8-15.

Use of the rolling processes in the mill CTRR with two and three roller rows allows to reduce the number of technological operations for 1-2 cycles. That leads to decrease of the labor expenditure, raises the productivity of labor.

In connection with use in the last row of rollers with minimum expansion of the groove the initial difference in the cross wall thickness is considerably decreasing and can reach the value of some percent.

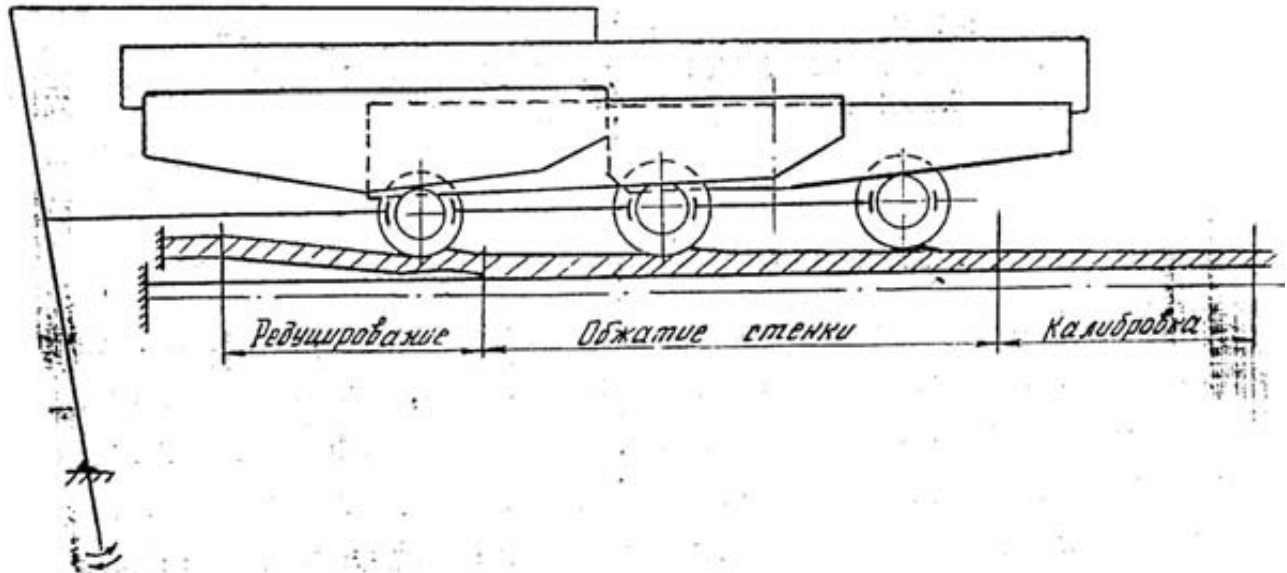


Figure 2. Process of continuous die three-row roller rolling

The work indices for new processes of continuous die rolling are added in the Table in comparison with traditional one-row processes.

Type dimension of the mill CTRR	Number of rows	Wall thickness of finished tubes, mm	Reduction in diameter, mm	Reduction in wall thickness, mm
6-15 8-15	1	0.3-1.5	Till 3.0	Till 0.5
	2	0.3-1.5	Till 5.0	Till 0.8
	3	0.3-1.5	Till 6.0	Till 1.1
15-30	1	0.3-2.5	Till 3.0	Till 0.6
	2	0.3-2.5	Till 6.0	Till 0.9
15-45	1	0.3-2.5	Till 3.0	Till 0.6
	2	0.3-2.5	Till 7.0	Till 0.9
	1	0.3-3.0	Till 4.0	Till 0.7

30-60	2	0.3-3.0	Till 8.0	Till 1.0
-------	---	---------	----------	----------