

MY GEAR is Bigger than YOUR

Industry Battles it

Feedback: My Gear Is Bigger than Your Gear

I read your article "My Gear is Bigger than Your Gear" in the March/April issue. I worked in engineering at Philadelphia Gear from 1963 until 1984. In the mid-1960s we built the drive systems for the JPL/NASA 210 ft. radio telescope. I remember the azimuth drive gear was approx. 80 ft. in diameter [24 meters]. The two elevation gears were sectors of 110 to 120 degrees with a radius of approximately 37.5 ft. The gears have a smooth track on the inner diameter of the gear rims. The drive reducers have a floating mount system so that the drives follow the gears and are not affected by the large thermal growth of the big gears. The gears were precision form cut in segments of about 10 ft. of circumference and assembled at the construction site. There were three systems built that I believe are still running. The first is at Goldstone in Mojave, California. The other two are near Madrid, Spain and in Australia. I have been at two of the sites, but not the one in Australia. That one in Australia was the subject of a movie for the general public 10 years ago or so.

You can see the elevation gear in the pictures at: <http://wikimapia.org/472151/Goldstone-DSS-14-Mars-Station>.

Leonard Haas
Consulting Engineer

I enjoyed your article "My Gear is Bigger than Your Gear" today and felt compelled to e-mail you. We are a machine shop in Rockford, Illinois and back in December my father and I were in Germany to see the runoff of the last of three large machining centers we ordered for our company in the town of Chemnitz. On our way back West to Frankfurt we had an open invitation to stop and visit the Waldrich Coburg plant in Coburg, Germany, where they build very large portal milling machines and vertical turning lathes. On our tour in the last assembly bay was the machine you mentioned for van der Wegen. We were able to stand on its rotary table and witness the size—absolutely gigantic—and a photo really doesn't do it justice. The machine is a gantry portal machine where the columns move across a stationary table to do milling work and then over the turning table that is pictured to turn and cut gears on the same table. We were told that Waldrich designed a special head to perform the gear cutting work. If I recall correctly the turning table is in the neighborhood of 9–10 meters diameter and the distance between columns was 13 meters; this is the widest machine that Waldrich Coburg has ever built. What is unique and what you pointed out in the article is that, because the columns can move and back off the turning table, this machine can cut up to a 17 meter diameter gear.

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Engineering recently shipped a gear boasting an outside diameter of 13.2 meters and weighing 73.5 tonnes.