

Integrated Mixing Granulator | High-Efficiency Metal Powder Granulation for Powder Metallurgy | CO-NELE



Qingdao, Shandong Sep 7, 2026 ([Issuewire.com](https://www.issuewire.com)) - Granulation is a core and critical process in powder metallurgy production that directly determines the final product quality, production efficiency and yield rate. For a long time, metal powder granulation has been a prominent bottleneck in the industry. Traditional granulation processes are plagued by cumbersome equipment configurations, redundant procedures, low productivity, uneven particle size distribution, frequent screen clogging and severe raw material waste, which greatly hinder the large-scale and high-quality production of powder metallurgy enterprises. Targeting the granulation demands of iron powder, copper powder, titanium powder, nickel-based superalloy powder and other metal powders, CCO-NELE Machinery has launched an integrated mixing granulator. Adopting the 3D turbulent granulation core technology, this equipment completely revolutionizes traditional granulation modes and realizes high-efficiency, high-quality and low-cost metal powder granulation

1. Core Pain Points of Traditional Metal Powder Granulation Processes

The two mainstream granulation methods currently adopted in the powder metallurgy industry both have obvious technical drawbacks and cannot balance production efficiency and product quality, becoming major obstacles for manufacturers.

Issue A: Poor Material Adaptability

Some enterprises adopt independent spray granulators with poor material adaptability. For metal powders with diverse particle sizes, morphologies and apparent densities, it is difficult to achieve precise particle forming. This easily leads to inconsistent particle sizes, poor fluidity and low finished product yield, failing to meet the production standards of high-precision metallurgical parts.

Issue B: Complicated & High-Cost Combined Process

Most manufacturers rely on the combined process of “kneading stirring + extrusion granulation”, which requires complicated procedures and high equipment investment. The production line needs separate mixers, kneaders and granulators. Frequent material transfer and secondary equipment docking increase labor costs and floor space, while causing material loss and prolonged production cycles. In addition, extrusion granulation suffers from frequent screen clogging and unplanned downtime for cleaning, disrupting continuous production, reducing overall efficiency and resulting in substantial waste of raw materials and working hours.

2. CO-NELE Integrated Mixing Granulator: Streamlined Granulation Process to Revolutionize Traditional Production

With years of technological accumulation in powder processing equipment, the CO-NELE integrated mixing granulator is precisely tailored for various metal powder granulation scenarios. It eliminates the complexity of multi-equipment collaboration and realizes one-stop completion of feeding, mixing, bonding, granulation and forming with a single device, thoroughly solving the pain points of traditional processes and simplifying metal powder granulation to an efficient and stable operation.

Typical Application: Iron Powder Granulation

Taking iron powder granulation as a typical application, the operation process is extremely simple. Manufacturers only need to put all raw materials including iron powder, binders and solvents into the equipment tank at one time, set the rotating speed and working duration, and the machine will automatically complete uniform mixing and precise granulation. Dry finished particles are directly discharged without secondary processing or material transfer, which greatly streamlines procedures and shortens production cycles.

Cost & Efficiency Comparison

Compared with traditional processes, the CO-NELE integrated granulator requires no additional mixers or kneaders, significantly reducing equipment procurement, operation and maintenance, and floor space costs. It minimizes material loss during transfer, improves raw material utilization, and helps enterprises achieve cost reduction and efficiency improvement.

3. Core Technical Advantages: Full Compatibility with All Types of Metal Powders and Upgraded Particle Quality

Metal powders vary greatly in physical properties. Iron powder, copper powder, titanium powder and nickel-based superalloy powder feature distinct particle sizes, micro-morphologies and apparent densities, leading to different forming difficulties when mixed with binders and solvents. Equipped with 3D turbulent granulation technology, the CO-NELE mixing granulator delivers excellent material adaptability, accurately matching various metal powder formulas and ensuring stable and controllable granulation results.

Uniform & Adjustable

The particle size can be freely adjusted according to production requirements. The formed particles feature uniform size distribution, high compactness and excellent fluidity, fully meeting the production standards of high-precision powder metallurgy products and effectively improving the finished product yield.

Multi-functional & Multi-scenario

Optional heating, cooling and vacuum devices are available to adjust the production temperature and vacuum environment based on different powder characteristics and process requirements. This further optimizes granulation performance and efficiency, adapting to diverse and refined production scenarios.

No Screen Clogging

It completely avoids screen clogging and frequent downtime issues common in traditional extrusion granulators. The equipment operates stably for long-term batch production, greatly boosting overall production capacity.

Easy Cleaning & Low Maintenance

The optimized structural design eliminates dead corners and material residue. Quick cleaning after operation effectively prevents cross-contamination between batches. Simple daily maintenance significantly reduces labor and equipment operation costs.

4. Practical Production Value: Empowering Powder Metallurgy Enterprises to Improve Quality, Reduce Costs and Boost Efficiency

Since its launch, the CO-NELE integrated mixing granulator has been widely applied in various metal powder granulation production lines, solving core technical difficulties for numerous powder metallurgy manufacturers. Compared with traditional dual-equipment granulation lines, this equipment delivers comprehensive improvements: higher granulation efficiency, higher finished product yield, less raw material waste, and lower labor and equipment operation costs.

It is perfectly applicable to conventional iron powder and copper powder granulation, as well as high-precision granulation of special powders such as titanium powder and nickel-based superalloy powder. With mature technology and stable performance, CO-NELE provides one-stop standardized granulation solutions to promote the upgrading and iteration of production processes in the powder metallurgy industry.

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