



NAGAO SYSTEM

## Corporate Profile

NAGAO SYSTEM INC. is a professional organization that provides solutions for milling, mixing, and dispersion, which could not be achieved in the past, through the application of high-speed rotation of its patented 3D Ball Mill (3D Reactor). Materials below the mm scale (organic/inorganic materials) can be pulverized, mixed, and dispersed up to the nano and micron level (both dry and wet formats). The company is also skilled in mixing substances (organic/inorganic) with different specific gravity and viscosity evenly without the use of pellicles or feathers. It produces and sells these devices and dedicated containers.

## Our Business and Leading-edge Activities

The 3D Ball Mill (3D Reactor) is a patented product developed in-house by NAGAO SYSTEM INC. The high-speed 3D motion is able to effectively pulverize, mix, and disperse materials very evenly, which could not be achieved with the previous technology (2D motion). This has in turn enabled the development of new products. NAGAO SYSTEM INC. proposes a new "monozukuri" through the application of the 3D Ball Mill.

Today, there is rapidly growing demand for high added value in the form of 3D printer molding materials, battery materials, conductive paste ink, special paint, and printer ink.

There are limitations to existing methods when it comes to making the transition to such innovative and value-added "monozukuri."

The simple and intrinsic quality of the mixing process lies at the back of such innovative products.

There is rapidly growing demand for mixing services, which influence this quality. Are there rapidly growing needs for mixing services?

[Current challenges]

(1) There is a need to mix resin and metals (or ceramics). However, due to the considerable difference in specific gravity, they do not mix well.

(2) Currently, mixing is carried out with pellicles. However, this generates shearing heat such that the resin undergoes thermal changes, making it difficult to mix the substances well.

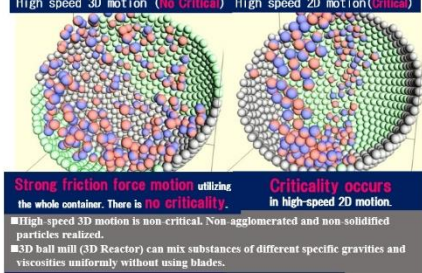
[NAGAO SYSTEM INC. can solve these problems through the use of the 3D Ball Mill]

(1) Realize non-coagulation in mixing and milling.

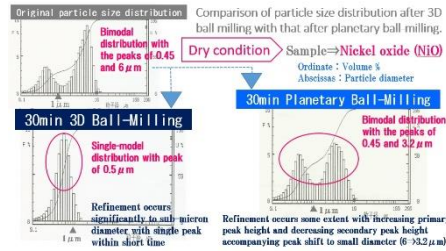
(2) Realize single peak mixing and milling

### 【3D Ball Mill(3D Reactor)】 (Medium/Small Size)

Difference between high-speed 3D motion and high-speed 2D motion

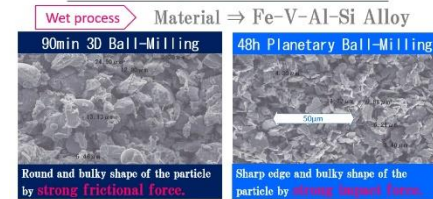


Differences between high-speed 3D motion and high-speed 2D motion



### Non-coagulation during milling and mixing

Comparison of SEM image for material crushed by 3D ball-mill with that by planetary ball-mill



Difference of SEM for impact force and frictional force

## Global Business Expansion

1 Mar 2016: Delivery to King Mongkut's Institute of Technology Ladkrabang

1 Jun 2016: Opened office in Asok, Bangkok

23 Jun 2016: Bangkok BITEC held, participation in business meeting organized by Thailand Ministry of Commerce

26 - 31 Jul 2016: Exhibited at IMPACT, Thailand Industry Expo in Bangkok

27 - 29 Jul 2016: Exhibited at STEMa2016, held at the Holiday Inn Pattaya

23 Sep 2016: Made a presentation at event organized by the Technology Promotion Association (Thailand-Japan), Sukhumvit, Bangkok

22 - 25 Nov 2016: Exhibited in METALEX 2016 organized by Bangkok BITEC

24 Nov 2016: 3D Ball Mill featured in NNA Thailand edition

21- 24 Feb 2017: Participated in Bangkok, Hanoi business meetings under JETRO's support program for first-time exporters

14 Mar 2017: Participated in Kawasaki Institute of Industry Promotion business meeting at Ho Chi Minh

1 Apr 2017: Opened office in Ho Chi Minh, Vietnam

25 - 30 Jul 2017: Exhibited at IMPACT, Thailand Industry Expo in Bangkok

2 Aug 2017: Participated in Kawasaki Institute of Industry Promotion business meeting at Jakarta

## Inquiries

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