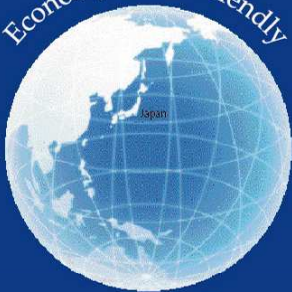


Economy & Eco-friendly



Yamaguchi



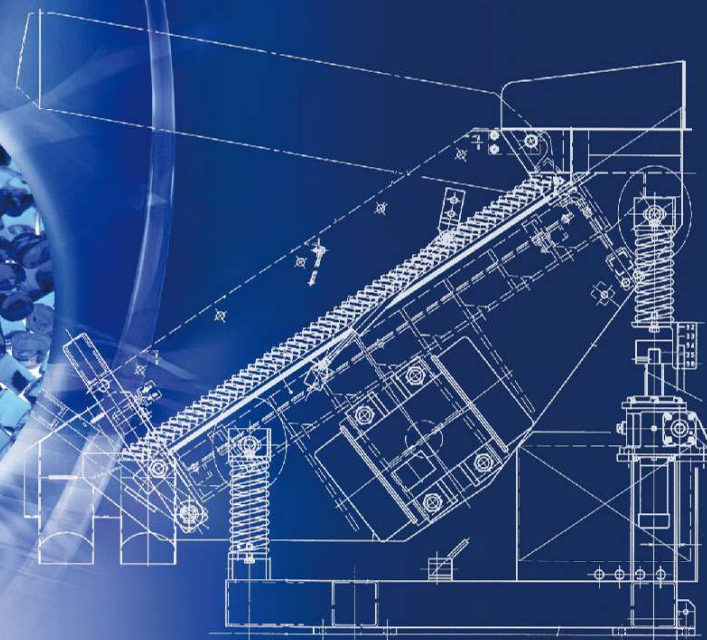
TOKKI LTD.
ECO DEPARTMENT

50-5 Nakiri, Kuriya, Shunan,
Yamaguchi, Japan 745-0802

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Series
Vセパレータ VS
高精度樹脂ペレット選別機 V-shape separator



TOKKI LTD.
ECO DEPARTMENT

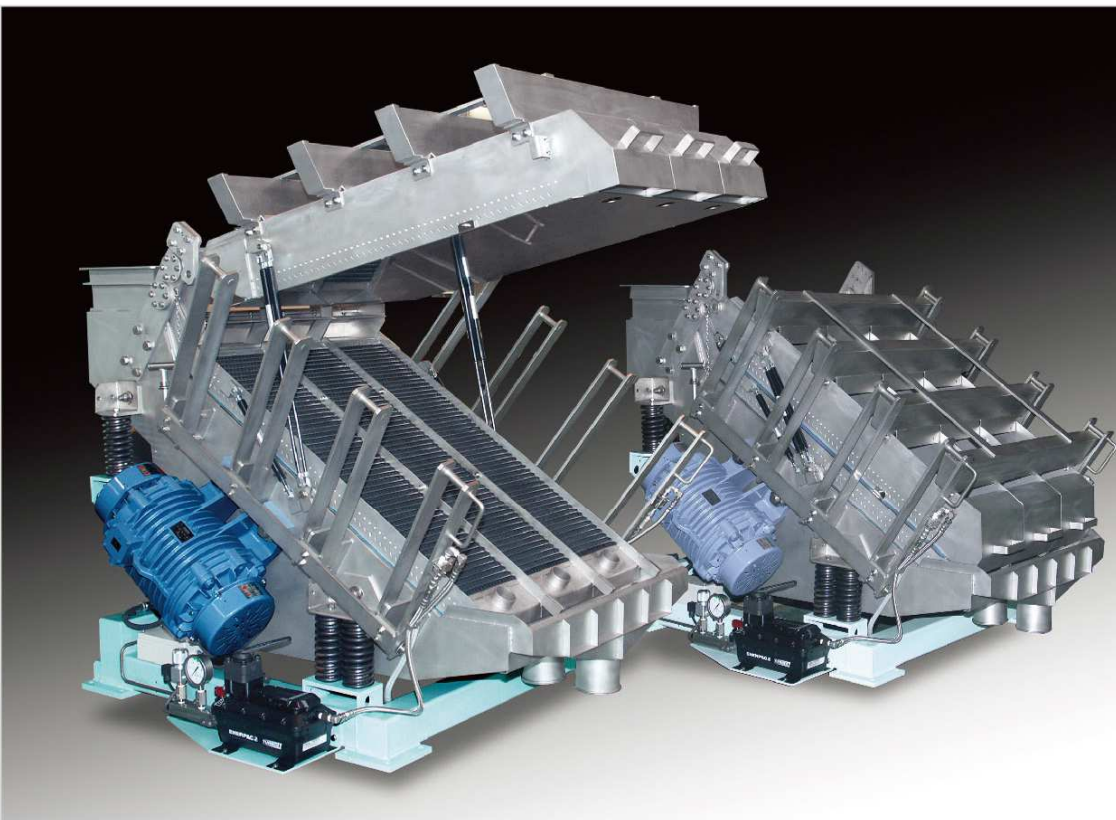
徳機製 Vセパレーターは、ペレットの転がりと静止摩擦を利用した、カスケード型セパレーターを国産品として初めて実用化しました。

特徴

- 1. 正確な選別精度**
VセパレーターはV字の溝と勾配を利用し、転がりと静止摩擦による選別の為、長ペレットが、網目を通過し良品へ混入することはありません。
- 2. 目詰りが、大幅削減**
網目でなく、V字の溝と勾配で選別を行うために、網目に刺さることもありません。
- 3. 運転中に、選別精度の調整が可能**
運転中にインバーターの周波数や勾配を変えることが可能で選別調整が簡単に出来ます。
- 4. スクリーンの交換が不要**
ペレット形状が、φ1~4ミリまで有れば、カスケードの交換は、不要です。
- 5. 選別の形状を選びません。**
スクリーンでは、すぐに目詰りを起す、L字・T字・U字・連結ペレットも目詰りする事無く、選別できます。
- 6. 振動調整が簡単**
モーターのバランスウエイトの調節により振幅が変更出来、インバーターの周波数調整により振動数が変更出来る為、処理能力の調節が簡単です。
- 7. 静かな起動・停止**
起動・停止は、インバーターにより、共振点を素早く通過するため、偏振動の発生がありません。
- 8. 掃除が簡単**
ハッチタイプのシンプル構造なので、掃除はわずか1分で完了します。

Characteristics

- 1. Separation is done accurately**
Separation takes place from rolling frictions by making use of V-shape grooves with a slope, so that long shape pellets cannot pass through the meshes to be mixed with good pellets.
- 2. Clogging is largely reduced.**
Separation is done in the V-shape grooves with a slope and not through meshes, and so pellets cannot be clogged in the meshes.
- 3. Separation accuracy is adjustable during operation.**
The frequency of the inverter and the slope are adjustable during operation, and so the separation accuracy can be adjusted easily.
- 4. Screen replacement is unnecessary.**
The cascade screen is unnecessary, where the size of pellets is φ 1 to 4 mm.
- 5. All pellet shapes are acceptable.**
Pellets of L-shape, T-shape or U-shape which tended to be clogged on the screen are all separable without occurrence of clogging.
- 6. Vibration regulation is easy.**
The amplitude is adjustable by regulating the balance weight of motor and the vibration frequency can be regulated, and so the adjustment of throughput is easy to do.
- 7. Quiet start-up and shutdown are possible.**
The start-up and shutdown operation occur with no eccentric vibrations caused since the resonance point is quickly passed over due to the inverter.
- 8. Cleaning is easy.**
A hatch type construction is so simple that the cleaning is completed in a minute.



TOKKI's V-shape separator is a cascade type separator by making use of the mechanism of rolling of pellets and static frictions, which was realized as the first model in Japan.

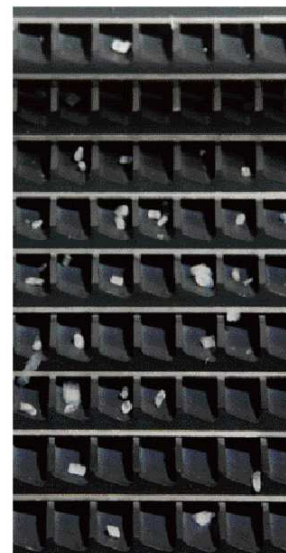
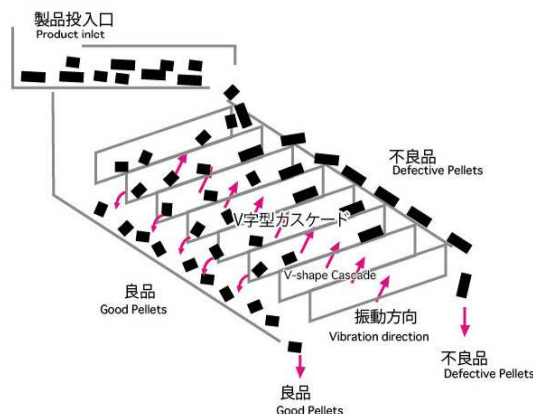
V-shape separator

VS-2000



従来のカスケード型セパレーターに、更なる改良を加えたこの度Vセパレーターの開発により、目詰りの発生を大幅に改善することに成功しました。

The development of this V-shape separator was made practical, as the result of further improvement incorporated into the conventional cascade type separator and problem of pellet clogging is largely removed.



V字型カスケード (特許取得)

従来のカスケード型セパレーターに新たな改良を加えたのは溝形状です。従来型の弱点は溝形状が左右対称のU字形であったため、数珠状になったペレットが、溝の両側壁面にまたがって落下した場合、下方向に働く左右の摩擦力が、均等な為にブリッジとなり目詰りの原因となっていました。

そこでU字から左右非対称V字にすることに着目しました。左右角度を鋭角と鈍角にすることで溝の両側壁面にまたがって、落下した場合でも下方向に働く左右の摩擦力が、不均等な為に鋭角の壁の壁面の摩擦力が、下方向に働く力に負けて落下します。

Vセパレーターの開発により、目詰りによる清掃作業が短縮され、運転停止時間のロスを大幅に削減し、生産性の向上に伴うコストの削減と出荷製品の品質信頼性アップに大きく貢献します。

V-shape Cascade (Granted Patent)

The modification of the conventional cascade type separator is a groove shape. A weak point with the conventional type was a U-shape groove, in which if bead-shape pellets fall down as being across the both side walls of the groove, then the both side friction forces applying downward can make a bridge because the both side friction forces are uniform with the symmetric groove shape, and it can cause clogging.

Contrary to such a mechanism, the improved type has a non-symmetric V-shape groove where its angles at both sides are sharp and dull, so that even if similar pellets fall down as being across both side walls of the groove, the friction force on the sharp side wall with a stronger down force can make them fall down because the both side friction forces applying downward are not uniform.

By development of such a V-shape groove separator, the cleaning time from clogging as well as the shutdown time is significantly shortened, which results in a higher production efficiency and cost reduction, and thus shipping product quality is largely improved.

選別の原理

Vセパレーターは一定の傾斜角度を持たせた振動フィーダーにかけると良品(ほぼ立方体)は、斜め上方向の振動により、支点よりも重心の位置が下方向に変化する事により下へ転がって行きます。

一方、不良品(長ペレット&数珠なり)は支点よりも、重心の位置が常に上方向にある為、転がる事無く静止摩擦により止まり、V字の溝形状に長手方向に並列して、斜め上方向の振動を受け、斜面を上昇します。

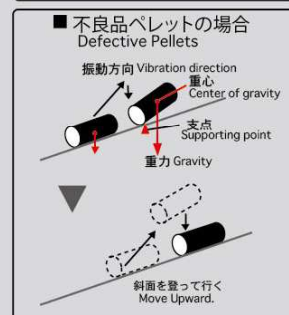
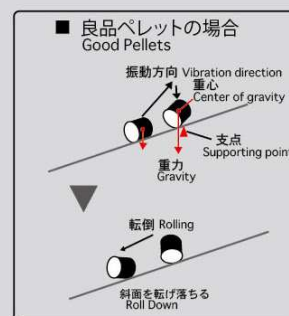
又、糸引きペレット・細長ペレット・微粉等も同様の原理で、斜め上方向の振動により上昇し、不良品として排出します。

Principles of Separation

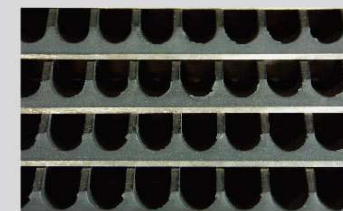
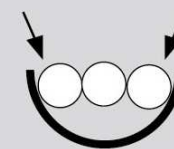
When the V-shape separator is operated on the vibration feeder having a certain degree of slope, good product (approximately cube-shape pellets) rolls down with its center of gravity positioned downward from the supporting point by receiving vibration in the direction upward slantways.

While, defective product (long pellets and bead pellets) has its center of gravity positioned upward from the supporting point always, so that it cannot roll down but stays with static frictions, and are aligned in a longitudinal direction in the V-shape groove and then moves on the slope upward by vibration applied in the direction upward slantways.

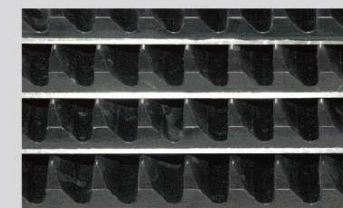
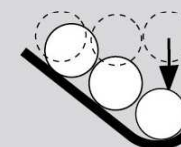
Likewise, string pellets, long slender pellets or particles move on the slope upward based on the same principles as above mentioned, and are discharged as defective product. The separation efficiency of this V-shape separator is greatly enhanced owing to the application of rolling and static friction forces.



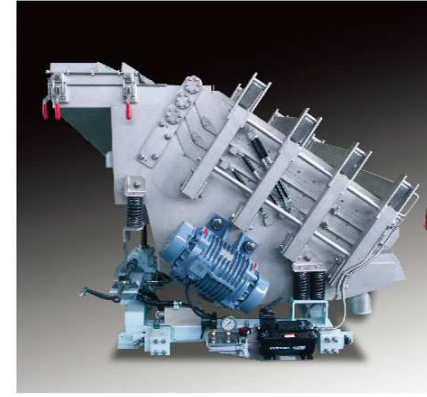
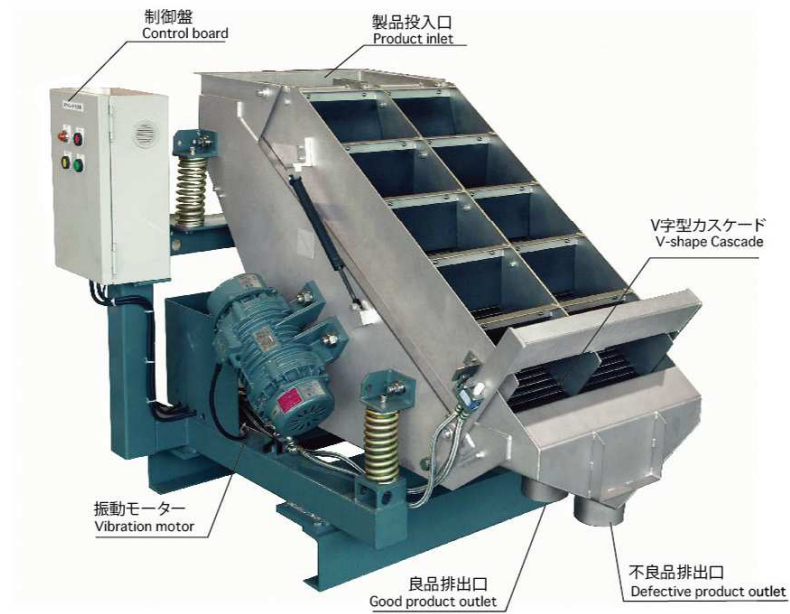
U字型カスケード (従来型) U-shape Cascade (Conventional Type)



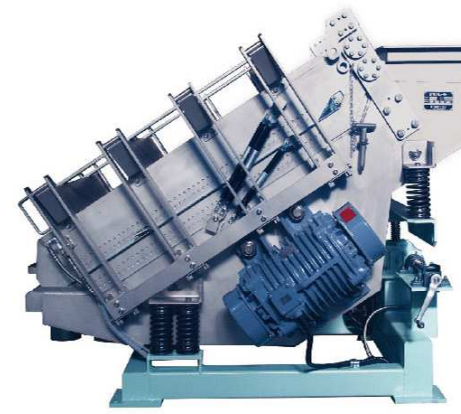
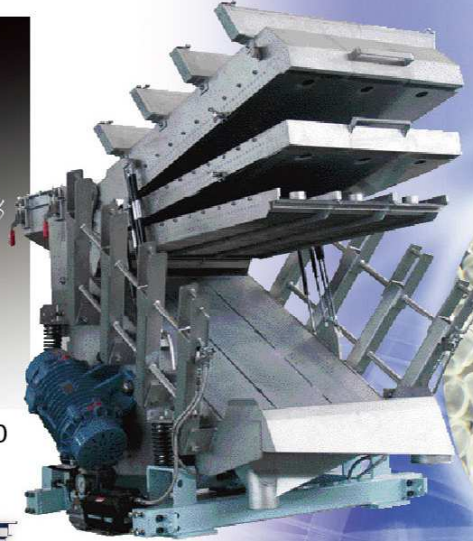
V字型カスケード (徳機式) V-shape Cascade (Tokki's Type)



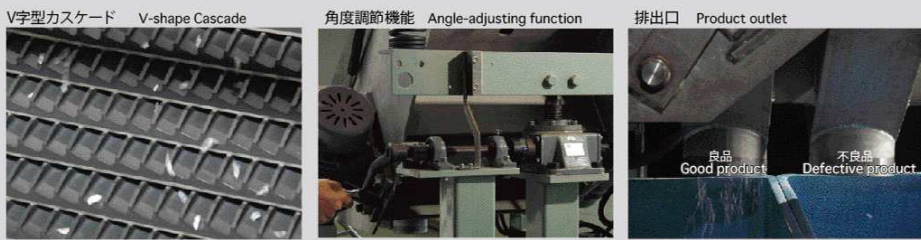
ラインナップ・仕様 Lineup and specifications



VS-3000

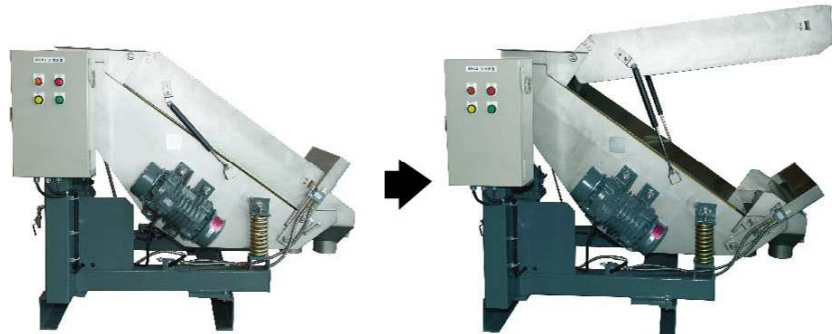


VS-2000



仕様 Specification

仕様 Specification	型式 Model	VS-300	VS-600	VS-1000	VS-2000	VS-3000
生産量 Throughput	(kg/h)	300	600	1000	2000	3000
装置サイズ Machine size	LxWxH (mm)	1400x850x1110	1500x1250x1110	1500x1550x1110	1650x1750x1250	1650x1750x1400
ペレットサイズ Pellet size	(mm)	Φ1~Φ4 × 1~4 L				



ハッチ式なので簡単に掃除が出来ます
Cleaning is easy due to a hatch type construction.



VS-300

