

NIKUNI SLUDGE POD INFORMATION

This technical summary provides a brief introduction to Nikuni's Sludge Pod including operation and highlights.

Introduction

The Nikuni Sludge Pod is an optional accessory to Nikuni's VDF Series hydrocyclone filtration units (Figure 1 - Cyclone and Sludge Pod). It is used to concentrate sludge waste, separating from target fluid in the most efficient method for disposal.

Basic Operation

While running the filtration system, sludge is accumulated into the Sludge Pod which remains shut until the sludge reaches a maximum concentration (Figure 2 - Sludge Accumulation).

Upon reaching the maximum concentration the Sludge Pod is purged to release the sludge either automatically via solenoid valve or manually as a routine procedure (Figure 3 - Sludge Purge). This timing is predetermined and dependent on flow rate and solids percentage.



Figure 1 - Cyclone and Sludge Pod

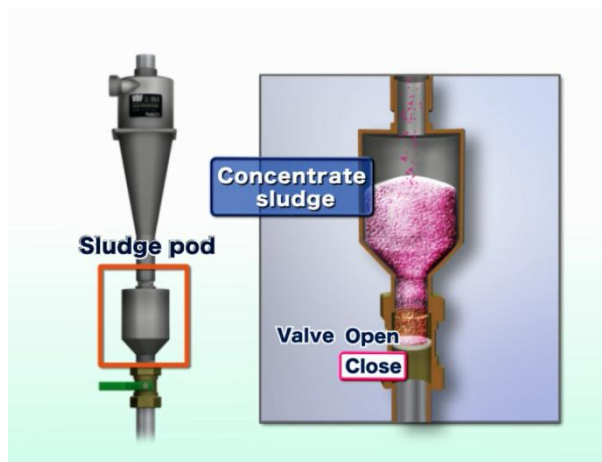


Figure 2 - Sludge Accumulation (Closed)

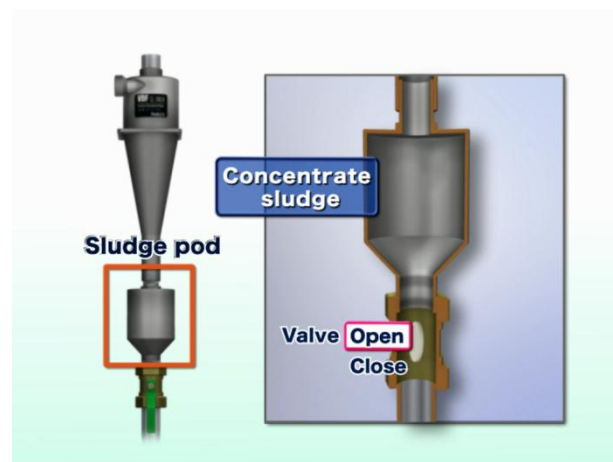


Figure 3 - Sludge Purge (Open)

Nikuni Co. VDF Hydrocyclone: Sludge Pod

Sludge Concentration Ratio

Conventional hydrocyclone separators output a ratio of approximately 9 : 1 of clean filtered fluid to dirty sludge waste (Figure 4 - Conventional Disposal Method). Often this sludge waste fluid is recycled back into the system to go through filtration once again.

In systems using the Sludge Pod, because the pod remains closed until maximum concentration and is opened only to release that sludge, nearly 100% of the input fluid is filtered and output as clean fluid (Figure 5 - Sludge Pod Disposal Method). Only a minimal amount of fluid is expelled with the sludge (the inner volume of the pod minus the sludge).

Conventional Cyclone Filter



Figure 4 - Conventional Disposal Method

Cyclone with Sludge Pod

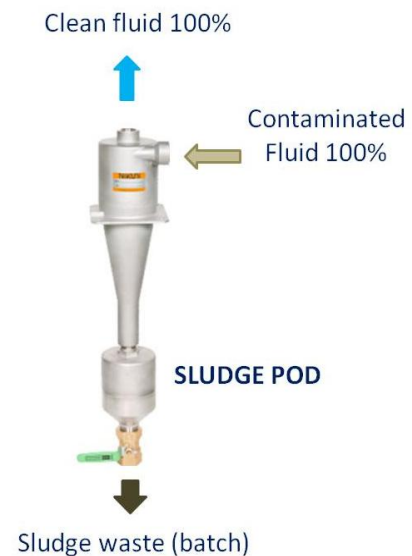


Figure 5 - Sludge Pod Disposal Method

A sample calculation illustrates the difference in efficiency. It should be noted that each case will be different due to variations in purging requirements. Let us assume a system running at 200 L/min for 10 hours and purging the Sludge Pod twice per hour:

Case 1: Without Sludge Pod

10% recycled back into system = 20 L/min
20 L/min x 60 min x 10 hr = **12,000 L**

Case 2 : With Sludge Pod

Open pod twice per hour
Fluid inside pod = 0.5 L
0.5 L x 10 hr x 2 = **10 L**

Nikuni Co. VDF Hydrocyclone: Sludge Pod

Depending on flow rate and concentration of solids in the target fluid, the amount of dirty fluid expelled from the sludge pod can be as little as 1 : 4,600 of the amount expelled from conventional methods (See Figure 6 - Sludge Pod Efficiency).

Sludge Pod Highlights

OPTIMAL EFFICIENCY

Sludge Pod usage drastically reduces the amount of coolant fluid needed to be re-circulated, translating into reduced coolant temperature and significant energy and continual running cost savings.

SIMPLIFIED DISPOSAL

Since the sludge is concentrated with minimal fluid, it can be easily transported to the next stage of disposal and sludge conveyors can be reduced in size.

DURABLE STAINLESS STEEL DESIGN

Nikuni's cyclone separators and sludge pods are made of stainless steel, eliminating rusting and providing optimal durability for a variety of possible applications.

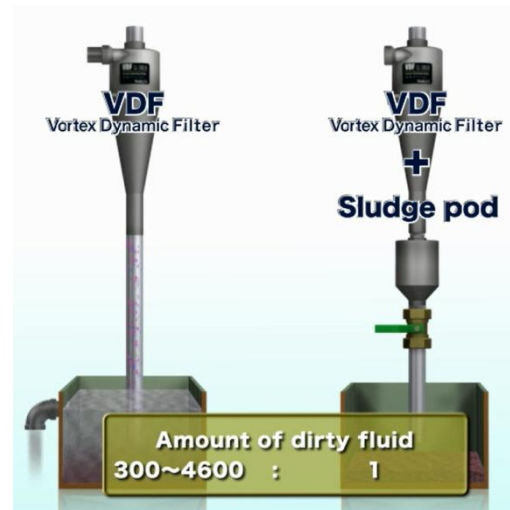


Figure 6 - Sludge Pod Efficiency

Sludge Pod Selection

Multiple sizes are available to fit well with various production requirements:

Model	Flow Rate (L/min)	Flow Rate (US gpm)
SPD-100LW	30 - 100	8 - 26
SPD-300LW	200 - 300	53 - 79
*SPD-100J	30 - 100	8 - 26

* SPD-100J Case: Transparent polycarbonate / Cap: ABS resin

Examples of circuits:

