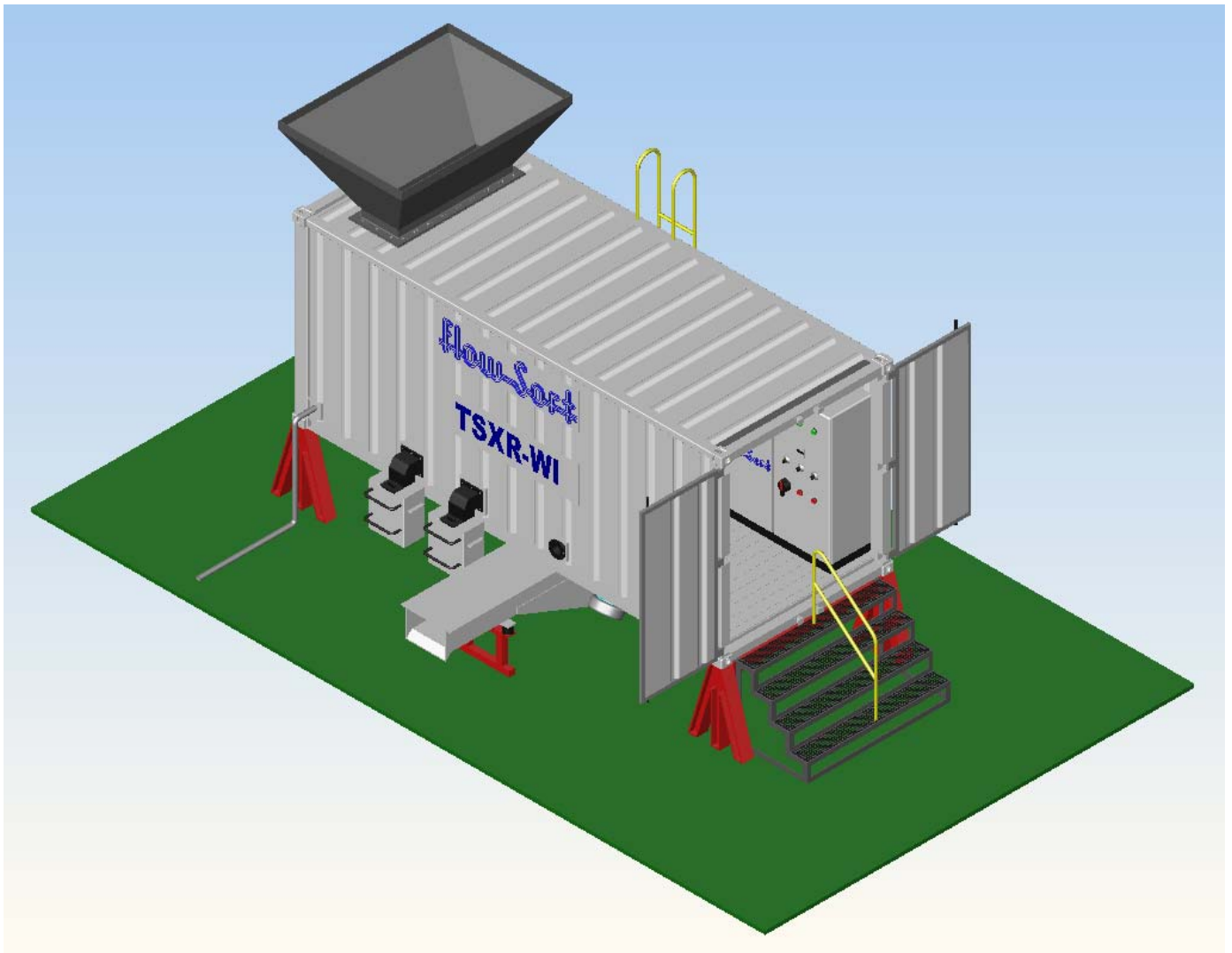


Flow Sort

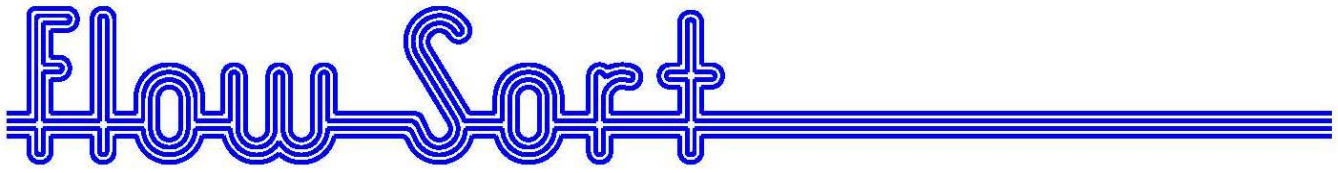
INTRODUCING FLOW SORT'S ALL NEW
“WALK-IN”

DIAMOND RECOVERY MACHINE

**THE CAPACITY OF 8 STANDARD MACHINES
COMBINED IN ONE 20ft CONTAINER**



**16 CHANNEL HIGH CAPACITY
X-RAY DIAMOND RECOVERY MACHINE**



TECHNICAL SPECIFICATION FOR **SSXR-WI** AND **TSXR-WI** X-RAY DIAMOND RECOVERY MACHINES

Due to their robustness, compact construction and simple operation many of our Flow Sort XR and TSXR machines have been installed into standard 20 foot shipping containers. Such containerized Flow Sort machines make a very secure and highly mobile X-ray diamond recovery module which has gained popularity with prospectors, diggers and diamond miners alike.

At Flow Sort we have succeeded to put 2 x TSXR Flow Sort's (which effectively means 4 individual sorters) together with chutes, bins, tailings feeder, etc into a single standard 20 foot shipping container. Depending on material size and type such an X-ray module can sort approx. 2.0 tons per hour. Over the past 10 years we came across many cases where a 2t/h capacity was not enough and setting up mobile sorting installations consisting of several individual container modules simply was not an option.

We thus set out to find ways and means of increasing the capacity of our X-ray sorters without jeopardizing any of their unique features, and most importantly, their transportability.

The breakthrough came by changing the traditional concept of placing several individual X-ray sorting machines inside a container to a new concept whereby the container itself becomes the X-ray sorter enclosure!

We are now proud to announce Flow Sort's development of a new X-ray sorter module (SA patent application No. 2004/6706). With the exact dimensions of a standard 20ft shipping container, this new sorter boasts the capacity of eight (8) standard Flow Sort **TSXR** machines. In other words, 16 individual sorters with no less than 32 individual sorting channels, together with all their control and power circuits, fitted into a single 20 foot container! This sorter module is capable of sorting some **10 tons per hour** of +2mm - 25mm (+2mm -40mm) material!

Due to the unique feature of our new design, to be able to "Walk Into the sorter" for service and maintenance, we designated the model reference **SSXR-WI** and **TSXR-WI** (or **MSXR-WI**) to these new Flow Sort machines. The general design concept of our **SSXR-WI** & **TSXR-WI** diamond recovery machines remains essentially identical to our well proven **XR** and **TSXR**-sorter family. The fact that we have sold over 500 units to diggings and mines all over the world stands as proof that our sorting concepts are trendsetting in the industry!

Key features of our sorters that remain unchanged:

- Capability of Sorting **DRY** or **WET** feed material.
- Our patented high speed **MECHANICAL EJECTOR**
- **AUTOMATIC FEED RATE CONTROL**
- **OVER FEED PROTECTION**
- Self locking, high security **CONCENTRATE BINS**
- Our patented **FEED STABILIZATION**
A sort is only as good as the feed presentation
- **MODULAR DESIGN** with total interchangeability
- **SELF CLEANING OPTICS**
- **AUTOMATIC SORTER SELF TEST**
- **REMOTE SORTER MONITORING SYSTEM**

Our new **SSXR-WI** and **TSXR-WI** sorters boast the following additional features:

- **Computer controlled SIGNAL NOISE REDUCTION**
If you are looking for a needle in a haystack remove the haystack! If you are looking for a tiny diamond signal amongst a lot of interfering noise remove the noise!
- **SELF CALIBRATING OPTICS**
Set-up once and then forget about it!
- **AUTOMATIC TRACER DISPENSING SYSTEM**
Peace of mind
- **CAN SORT DIFFERENT SIZE FRACTIONS SIMULTANEOUSLY!**
Individual channels (in pairs) can feed different size fractions
- **INDIVIDUAL CHANNEL SHUTDOWN**
Minimize production loss in case of a problem
- **Optional DUAL OPTIC system**
Detect diamonds from two sides, a useful option in some applications)
- **Infra Red CAMERAS INSIDE the SORTER**
A world first! Observe, in real time, the sorter in action!
- **FLEXIBLE SORTER CONFIGURATION**
Our Walk-In (**WI**) sorters can be configured as **Single Stage** sorters (**SSXR-WI**) as **Twin Stage** sorters (**TSXR-WI**) or even as a combination of both, single stage sorters and twin stage sorters, forming a **Mixed Stage** sorter (**MSXR-WI**) !
All models can be configured from 2 channels (a single channel pair), in increments of two, up to 16 channels (8 channel pairs)
- **EXPANDABLE and CONVERTIBLE**
Add or remove channels, convert from single stage (**XR**) to double stage (**TSXR**) or visa versa)
- **TWO WAYS OF CONCENTRATE COLLECTION**
Diamond concentrates can be either collected via high security, self locking **CONCENTRATE BINS** or, for further processing (re-concentration), via a special **CONCENTRATE FEEDER**

TECHNICAL SPECIFICATIONS:

Specifications are applicable to **SSXR-WI** and **TSXR-WI** unless otherwise stated.

ELECTRIC SUPPLY:

SSXRWI: 380 Volt (+/- 10%), 50 Hz, 3 Phase + Neutral, + Earth. Power consumption is approx. 3kVA for sorters with 2 to 8 channels and 4.5 kVA for sorters configured with 10 to 16 channels

TSXRWI: Same as above but power consumption is approx. 4kVA for sorters fitted with 2 to 8 channels and 5.5 kVA for sorters with 10 to 16 channels.

Both sorter models are available for other supply voltages and frequencies on request.
Both sorter models are supplied with lightning protection, surge and phase failure protection.
Supply Voltage stabilizers are available as optional extras.

WATER SUPPLY:

QUALITY: The water supply to the sorter must be filtered through a 250 Micron filter (or smaller).

PRESSURE: The supply pressure, measured at the water-inlet fitting of the sorter, must be between 400kPa and 800kPa.

TEMPERATURE: MIN: +2.5°C MAX: +30°C

VOLUME for SSXR-WI: Approximately 15 liters / min. per two (2) sorting channels (channel pair)
Note that optimal water flow rate (volume) does vary with feed-rate and size of material to be sorted. Note that some 90% of the sorters feed water can be recycled within the sorter module!

VOLUME for TSXR-WI-: Same as for XRWI plus an additional 5 liters / min for every two (2) sorting channels (channel pair).

OPERATING TEMPERATURE RANGE:

SORTER: MIN: +2.5°C MAX: +45°C
RELATIVE HUMIDITY: 95% non condensing

FEED MATERIAL SPECIFICATIONS:

APPLICABLE TO **SSXR-WI** & **TSXR-WI**

Min SIZE: There is no minimum size limit! Recommended minimum is 2mm.
Max SIZE: Recommended maximum is 42mm. *Absolute maximum is 50mm.*
Particles exceeding 50mm in any dimension may cause blockages!

PARTICLE SIZE RATIO:

For maximum recovery efficiency we recommend a size ratio of 2:1 for material below 3mm and up to 3:1 for material above 3mm.

RECOMMENDED SIZE FRACTIONS:

ALL MATERIAL TO BE SORTED MUST BE APPROPRIATELY SIZED AND FREE OF UNDERSIZED AS WELL AS OVERSIZED MATERIAL.
FEED MATERIAL PRESENTED TO THE SORTERS MAY BE WET OR DRY. IT IS HOWEVER IMPORTANT THAT THE MATERIAL IS "CLEAN" i.e. FREE OF CLAY, SLIME, VEGETATION OR OTHER FOREIGN OBJECTS.

TYPICAL SIZE SPLITS applicable to **SSXR-WI** and **TSXR-WI** would be:

+ 2.0mm – 4,0mm + 4mm –10mm + 10mm – 25mm + 20mm – 40mm

A typical 16 channel (full house) sorter configuration set up to sort + 2mm – 40mm DMS concentrate (SG=2.7) will be able to sort the following:

10 channels	set for	+ 02mm – 04mm	feed rate	3 450kg/h
04 channels	set for	+ 04mm – 10mm	feed rate	3 220kg/h
01 channel *	set for	+ 10mm – 25mm	feed rate	1 725kg/h
01 channel *	set for	+ 25mm – 40mm	feed rate	3 450kg/h
16 cannels		+ 02mm – 40mm	total feed	11 845kg/h

*Note: 2 sorting channels are used for the size fraction + 10mm – 40mm

FEED RATES FOR **SSXR-WI** & **TSXR-WI** are as follows:-

For clarification take note that sorting channels of these sorters are arranged in pairs (Directly comparable with traditional Flow Sort models XR and TSXR configurations).

This means that each "channel pair" is fed by its own dedicated feeder!

Sorter feed rate per hour "FR" is computed by using the following approximations:

For primary recovery application (per sorting channel pair):

$FR \text{ (in kg/h)} = 150 \times d \text{ (in mm)} \times SF \times SG$

For re-concentration: $FR \text{ (in kg/h)} = 20 \times d \text{ (in mm)} \times SF \times SG$

d = AVERAGE PARTICLE DIAMETER (in a given size fraction) in **mm**

150 = 2 CHANNEL SORTER CONSTANT for sorters used in primary recovery

20 = 2 CHANNEL SORTER CONSTANT for sorters used in re-concentration

SF = "SHAPE FACTOR" = the particle volume expressed as a portion of the volume of a sphere with diameter "d" (i.e. 60% of volume of a sphere results in a "SHAPE FACTOR" = 0.6)

SG = AVERAGE SPECIFIC GRAVITY OF FEED MATERIAL (g/cm³)

For Primary Recovery applications **SSXR-WI**- and **TSXR-WI**- machine feed rate, **per channel pair**, for "NORMAL" shaped material (**SF ± 0.6**) with a **SG ± 2.7**. the sorter capacity for a channel pair (**in kg/hour**) is approx equal to 230 times the value of **d (mm)** $FR \approx 230 \times d$

Re-concentration **XR**- and **TSXR**- machine feed rate, **per channel pair**, for "NORMAL" shaped material (**SF ± 0.6**) with a **SG ± 2.7**. Sorter capacity (**kg/hour**) is approx equal to 32 times the value of **d(mm)** $FR \approx 32 \times d$

YIELD of **SSXR-WI** AND **TSXR-WI**:

These sorters produce concentrates of approximately $12 \times FR \times 10^{-6}$ per ejection (equivalent to 0.0012% of FR)

RECOVERY EFFICIENCY:

Theoretical diamond recovery efficiency figures depend on many factors such as feed rate, feed material particle size ratio and feed material temperature, cleanliness of feed material, colour of diamond, impurities and nitrogen content of diamonds etc.

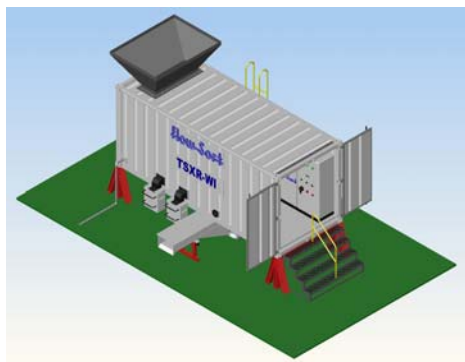
Statistics obtained over the past 14 years from over 500 of FLOW SORT machines operating around the world, sorting many different types of diamondiferous materials, show that diamond recovery efficiency (based on number of diamonds) of these machines is well above 98 percent! When relating diamond recovery figures to the value of diamonds rather than number of diamonds, efficiency figures run very close to 100 percent!

FLOW SORT OFFERS A DIAMOND FLUORESCENCE EVALUATION SERVICE, GEARED TO DETERMINE EXACTLY WHAT RECOVERY EFFICIENCY CAN BE EXPECTED IN SPECIFIC SORTER APPLICATIONS.

SORTER DIMENSIONS & WEIGHT:

The overall dimensions of our models **SSXR-WI** and **TSXR-WI** are those of a standard 20 foot shipping container. The weight of models **SSXR-WI** and **TSXR-WI** varies with their configuration from approximately 5.5 tons to 7.0 tons.

FLOW SORT (PTY) LTD. RESERVES THE RIGHT TO REVISE THIS SPECIFICATION AND TO MAKE CHANGES FROM TIME TO TIME IN THE CONTENTS THEREOF WITHOUT OBLIGATION TO NOTIFY ANY PERSON OF SUCH REVISION OR CHANGES.



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The logo for Flow Sort, featuring the words 'Flow Sort' in a stylized, outlined, blue font. The letters are interconnected and have a 3D effect.

LEADERS IN DIAMOND RECOVERY TECHNOLOGY