Metso Opti-Flo

Vibrating screens & feeders range

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Opti-Flo screen range linking innovation

Metso Mining & Construction Technology is the world's largest producer of vibrating equipment.

It is also the Industry Benchmark. Offering the most technologically advanced products and supported by dedicated people with unique expertise, Metso can work with our customers to solve their screening needs.

This application guide is to be used to help you select the correct vibrating product for the required application.

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Banana DF screens

The Metso DF Series Screens have a very robust and compact design, which allow them to operate under tough conditions.

They particularly perform very well when used to remove the fines between two crushing stages.

Product comparison

- Inclined banana screen having two slopes per deck (DuoFlo): High capacity
- Very efficient screen when there is a high content of fines in the feed
- Very compact screen easy to install

User Friendly

- Electrical unbalanced motors: simple and reliable
- Linear motion (self synchronization)

Options

- Rubber flat panels (Panelcord®) or perforated steel plates on top deck.

Machine	L x W (m)	Decks	Power (kW)	Operating speed (rpm)	Weight (kg)	Capacity (tph)	Top deck max. opening (mm)
DF2012P	2.0 x 1.2	3	2 x 4.5	1000	3000	250	100
DF2016P	2.0 x 1.6	3	2 x 6.6	1000	4800	350	125

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Banana TS screens

The Metso TS Series Screens were launched in 1999 and continue to be a unique design in the screening market making, them the most popular high capacity screens.

Design

- Banana curved decks; each deck consists of 3 slopes
- Vibrators are located above the centre of gravity which generates the variable elliptical motion
- The material speed is high at the feed end and slows down at discharge end creating very high capacities compared to normal screens.
- Available with 2 or 3 decks
- **MV** Vibrators (Modular cartridge design, grease lubricated)
- Side plates without welding and huck-bolted assembly. Very safe regarding fatigue stress
- Rubber suspensions: smoother shut down, safer, noiseless

Options

- Tensioned rubber or polyurethane panels (Trellex Trellecord)
- Modular panels, Trellex LS rubber or polyurethane
- Dust encapsulation
- PU protected cross members
- Wet screening (spray pipes)
- Galvanized body components
- Automatic greasing system

Machine	W x L (m)	Decks	Power (kW)	MV vibrator	Weight (kg)	Capacity (tph)	Top deck max. opening (mm)
TS2.2 **TS2.3**	1.5 x 5.0	2 3	15 22	MV2 MV3	6000 6500	400	75
TS3.2 **TS3.3**	1.8 x 6.0	2 3	22	MV3	8800 11000	550	75
TS4.2 **TS4.3**	2.4 x 6.0	2 3	30	MV4	12500 15000	700	75
TS5.2 **TS5.3**	2.4 x 8.3	2 3	30 2 x 22	MV4 2 x MV3	16000 20000	1000	75
TS6.2 **TS6.3**	3.0 x 8.3	2 3	2 x 22 2 x 30	2 x MV3 2 x MV4	18000 26000	1200	75

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Banana EF screens

The Metso EF series screens are high performance banana screens utilizing an elliptical motion vibration and high G acceleration, which contributes to eliminating blinding and plugging for difficulty to screen ores.
The 1/3 ellipse ratio is generated by two lines of mechanisms positioned far from the screen gravity center, enabling a self synchronism operation, eliminating the need of gears or timing belts.

With this unique feature, by optional electronic synchronization device, it is possible to adjust the stroke angle and speed with the machine in operation, optimizing the screening production and efficiency.

Features

- Self synchronized two shafts elliptical motion
- High capacity Banana shape
- Side plates without welding and huck-bolted assembly. Very safe regarding fatigue stress
- V series vibrators
- Oil or grease lubrication
- Available in 2 decks (1 deck upon request)

Options

- Stroke angle and speed control
- Automatic grease lubrication
- Dust enclosure (Trellex)
- Rubber lining
- Wet Screening (spray pipes)
- Modular panels (LS Trellex and more)

Machine	W x L (m)	Decks	Power (kW)	Vibrator	Weight (kg)	Capacity (tph)	Top deck max. opening (mm)
EF2448-2	2.4 x 4.8	2	45 + 22	V120 + V180	14 000	1200	100
EF2461-2	2.4 x 6.1	2	45 + 22	V120 + V180	16 000	1500	100
EF2496-2**	2.4 x 9.6	2	2x45 + 2x22	2xV120 + 2xV180	29 000	2000	100

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

***EF2496-2 consists of 2 independent screens EF2448-2 (feed module and discharge module)*

Banana MF screens

The Metso MF screens with multi slope deck inclinations, usually called the "banana Screen" strongly surpasses in performance traditional constant slope screens. The powerful linear vibration generated by the innovative **ML (Metso Linear) exciters** combine high throughput without blinding. The ML exciter is infinitely adjustable for process optimization.

MF screens are specially suited for large material volumes with a high percentage of undersize in the feed material.

Normally, MF screens are designed to accept screen media like Trellex Panelcord or Trellex LS modular panel system but can also be prepared for any other type specified by customer.

Options

- Screen body prepared for dust encapsulation
- SSP Monitoring system for the mechanismand the screen body
- Isolation frame
- Travel truck
- Different options of lining, specific drive arrangements, wet screening (spray pipes)
- Various erosion / corrosion protection measures

Machine	W x L (m)	Decks	Power (kW)	ML exciter (qty)	Weight (kg)	Capacity (tph)	Deck max. opening (mm)
MF1861-1 **MF1861-2**	1.8 x 6.1	1 2	30	2	10800 15500	1900	150
MF2461-1 **MF2461-2**	2.4 x 6.1	1 2	30 55	2	13850 20000	2500	150
MF3061-1 **MF3061-2** **MF3073-1** **MF3073-2** **MF3085-1** **MF3085-2**	3.0 x 6.1 3.0 x 6.1 3.0 x 7.3 3.0 x 7.3 3.0 x 8.5 3.0 x 8.5	1 2 1 2 1 2	30 55 55 55 55 90	2	17800 24650 19350 27850 21400 32500	3200	150
MF3661-1 **MF3661-2** **MF3673-1** **MF3673-2** **MF3685-1** **MF3685-2**	3.6 x 6.1 3.6 x 6.1 3.6 x 7.3 3.6 x 7.3 3.6 x 8.5 3.6 x 8.5	1 2 1 2 1 2	55 55 55 90 55 90	2 2 2 2 2 3	17800 28550 21850 33900 24000 37050	3700	150
MF4261-1 **MF4261-2** **MF4273-1** **MF4273-2** **MF4285-1** **MF4285-2**	4.2 x 6.1 4.2 x 6.1 4.2 x 7.3 4.2 x 7.3 4.2 x 8.5 4.2 x 8.5	1 2 1 2 1 2	55 90 55 90 55 90	2 3 2 3 2 3	23300 35300 25300 39550 27750 43500	4400	150

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Inclined CVB screens

The Metso CVB series Screens are well proven for Technical / Final sizing. Their simple and robust design has made them the most popular Metso screen.

Design

- Inclined screen 18°, vibrators located at centre of gravity: Circular motion
- Available with 1, 2, 3 or 4 decks
- **MV** Vibrators (Modular cartridge design, grease lubricated)
- Side plates without welding and huck-bolted assembly. Very safe regarding fatigue stress

Options

- Tensioned rubber or polyurethane panels (Trellex Trellecord)
- Modular screening Trellex LS panels (rubber or polyurethane)
- Dust encapsulation: stationary (type Trellex) or vibrating type (stretched canvas)
- PU protected cross members
- Wet screening (spray pipes)
- Galvanized body components
- Automatic greasing device

Machine	W x L (m)	Decks	Power (kW)	MV vibrator	Weight (kg)	Capacity (tph)	Top deck max. opening (mm)
CVB1540-1 **CVB1540-2** **CVB1540-3** **CVB1540-4**	1.5 x 4.0	1 2 3 4	11 15 15 15	MV1 MV2 MV2 MV2	2800 3150 4050 5000	300	75
CVB1845-1 **CVB1845-2** **CVB1845-3** **CVB1845-4**	1.8 x 4.5	1 2 3 4	15 15 15 22	MV2 MV2 MV2 MV3	3300 4200 5200 6800	400	75
CVB2050-1 **CVB2050-2** **CVB2050-3** **CVB2050-4**	2.0 x 5.0	1 2 3 4	15 15 22 22	MV2 MV2 MV3 MV3	3800 4700 6300 7600	600	75
CVB2060-1 **CVB2060-2** **CVB2060-3** **CVB2060-4**	2.0 x 6.0	1 2 3 4	15 22 22 30	MV2 MV3 MV3 MV4	5100 6500 8500 10400	800	75
CVB2661-1 **CVB2661-2** **CVB2661-3** **CVB2661-4**	2.6 x 6.1	1 2 3 4	15 22 30 30	MV2 MV3 MV4 MV4	6500 11000 13000 15000	1000	75

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Inclined RF screens

Metso RF series inclined screen range are designed for continuous-use operation in a broad range of sizing applications (technical / final sizing).

The RF screen is available in 1 or 2 deck configurations and can be used for either dry or wet screening.

Design

The RF screen design incorporates huck-bolted construction to eliminate stress points and improve structural integrity. Additional design features rugged body construction and abrasion resistant wear protection.

RF screen range utilizes the oil/ grease lubricated mechanism, consisting of a rotating eccentric shaft with additional external counterweight plates. The mechanisms are used to create a circular screening motion.

Options

- Dust enclosure (Trellex)
- Rubber lining
- Wet screening (spray pipes)
- Modular panels (LS Trellex and more)

Machine	W x L (m)	Decks	Power (kW)	Speed (rpm)	Weight (kg)	Capacity (tph)	Deck max. opening (mm)
RF2448-2	2.4 x 4.8	2	30	750-900	13750	1000	150
RF2461-2	2.4 x 6.1	2	2 x 30	750-900	17500	1000	150
RF2473-2	2.4 x 7.3	2	2 x 30	750-900	19300	1000	150
RF3061-2	3.0 x 6.1	2	2 x 30	750-900	21350	1300	150
RF3073-2	3.0 x 7.3	2	2 x 30	750-900	23800	1300	150

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Inclined CVB-P screens

The Metso CVB P series Screens are well proven for primary screening. Their simple and robust design has made them the most popular Metso screen.

Design

- Inclined screen 18°, vibrating machinery located at centre of gravity: Circular motion
- Available with 1, 2 or 3 decks
- **MV** Vibrators (Modular cartridge design, grease lubricated)
- Side plates without welding and huck-bolted assembly. Very safe regarding fatigue stress
- Flat bolted panels on 1st and 2nd deck (steel plates or Trellex Panelcord)

Options

- Tensioned rubber or polyurethane panels (Trellex Trellecord) on 2nd and 3rd deck
- Modular screening Trellex LS panels (rubber or polyurethane) on 2nd and 3rd deck
- Dust encapsulation: stationary (type Trellex)
- PU protected cross members (for side tensioned decks)
- Wet screening (spray pipes)
- Galvanized body components
- Automatic greasing device

Machine	W x L (m)	Decks	Power (kW)	MV vibrator	Weight (kg)	Capacity (tph)	Top deck max. opening (mm)
CVB1540-1P **CVB1540-2P** **CVB1540-3P**	1.5 x 4.0	1 2 3	15 15 15	MV2 MV2 MV2	3200 3650 4500	400	200
CVB1845-1P **CVB1845-2P** **CVB1845-3P**	1.8 x 4.5	1 2 3	15	MV2	3600 4500 5800	600	200
CVB2050-1P **CVB2050-2P** **CVB2050-3P**	2.0 x 5.0	1 2 3	15 22 22	MV2 MV3 MV3	4100 4900 6650	800	200
CVB2060-1P **CVB2060-2P** **CVB2060-3P**	2.0 x 6.0	1 2 3	15 22 22	MV2 MV3 MV3	5350 6700 9100	1000	200
CVB2661-1P **CVB2661-2P** **CVB2661-3P**	2.6 x 6.1	1 2 3	22 30 30	MV3 MV4 MV4	6800 11900 13000	1200	200

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Inclined RF-P screens

Metso RF-P series consist of inclined screen range, designed for continuous-use operation in a broad range of sizing applications (primary screening). The RF-P screen is available in 1 or 2 deck configurations and can be used for either dry or wet screening.

Design

The RF-P screen design incorporates huck-bolted construction to eliminate stress points and improve structural integrity. Additional design features rugged body construction and abrasion resistant wear protection.

RF-P screen range utilizes the oil/grease lubricated mechanism, consisting of a rotating eccentric shaft with additional external counterweight plates. The mechanisms are used to create a circular screening motion.

Options

- Dust enclosure (Trellex)
- Rubber lining
- Wet screening (spray pipes)
- Modular panels (Panelcord, LS Trellex and more)

Machine	W x L (m)	Decks	Power (kW)	Speed (rpm)	Weight (kg)	Capacity (tph)	Deck maxi. opening (mm)
RF2448-2P	2.4 x 4.8	2	2 x 30	750-900	15600	1250	200
RF2461-2P	2.4 x 6.1	2	2 x 30	750-900	18450	1250	200
RF2473-2P	2.4 x 7.3	2	2 x 30	750-900	20250	1250	200
RF3061-2P	3.0 x 6.1	2	2 x 30	750-900	21900	1600	200

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Horizontal FS screens

The Metso FS series screen are high performance horizontal screens utilizing an elliptical motion vibration.

The 1/3 ellipse ratio is very strong which contributes to eliminating blinding and plugging when material is very sticky or flaky.

For information, the traditional horizontal screens operate under pure linear motion which is less efficient on coarse screening.

Design

- Triple shaft line synchronized with gears: Elliptical motion
- Vibration is adjustable in angle and stroke (depending on the application)
- **MV** vibrators
- Side plates without welding and huck-bolted assembly. Very safe regarding fatigue stress
- Rubber suspensions: smoother shut down, safer, noiseless
- Available in 2 or 3 decks.

Options

- Tensioned rubber or polyurethane panels (Trellex Trellecord) on 2nd and 3rd deck
- Modular screening Trellex LS panels (rubber or polyurethane) on 2nd and 3rd deck
- Dust encapsulation
- PU protected cross members (for side tensioned decks)
- Wet screening (spray pipes),
- Galvanized body components
- Automatic greasing device.

Machine	W x L (m)	Decks	Power (kW)	MV vibrator	Weight (kg)	Capacity (tph)	Top deck max. opening (mm)
FS202 **FS203**	1.6 x 4.9	2 3	30 37	2 x MV2 3 x MV2	6500 8500	300 400	75
FS282 **FS283**	1.6 x 6.1	2 3	37	3 x MV2	8300 9500	400 500	75
FS302 **FS303**	1.9 x 6.1	2 3	37	3 x MV2	9000 11500	500 600	75
FS352 **FS353**	2.2 x 6.1	2 3	37 55	3 x MV2 3 x MV3	12800 14500	600 700	75
FS402 **FS403**	2.5 x 6.1	2 3	55 55	3 x MV3	15000 17000	700 800	75

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Horizontal LH screens

Metso LH Series screens are heavy duty horizontal screens, used in a wide range of applications such as mill discharge screening, coal preparation, fine wet screening, washing and dewatering. Note: for smaller size of dewatering screen ask your Metso screening support.

Standard design

The LH screen design incorporates huck-bolted construction to eliminate stress points and improve structural integrity. Others features include modular construction for ease of maintenance, abrasion resistant wear protection and compact overall height. The LH series screens are built using the latest engineering techniques, such as Finite Element Analysis. As a result, high reliability and long component life on even the most demanding application is guaranteed.

Metso LH series screens utilize the unique **ML exciters** (linear motion) which are easy adjustable by flywheels.

SAG discharge design

The special LH SAG screens are designed to handle the very high capacities from SAG mill discharge. The screens are designed with extra reinforcement in the feed zone and side plate as common lay-out of a SAG discharge chute demands a significant drop height and due to the rotational operation of a mill the ore is not well distributed in the screen feed box. Also a special lining and wear parts are considered to support the high pulp volume.

Options

- Dust enclosure (Trellex)
- Polyurethane side plate coating (internal)
- Rubber lining of support frame cross members
- Wet screening (spray pipes)
- Modular panels (LS Trellex...)

Machine	W x L (m)	Decks	Power (kW)	ML exciter (qty)	Weight (kg)	Capacity (tph)	Deck max. opening (mm)
LH1848-1 **LH1848-2**	1.8 x 4.8	1 2	30	1	5295 9810	570	50
LH2448-1 **LH2448-2** **LH2461-1** **LH2461-2** **LH2473-1** **LH2473-2**	2.4 x 4.8 2.4 x 4.8 2.4 x 6.1 2.4 x 6.1 2.4 x 7.3 2.4 x 7.3	1 2 1 2 1 2	30 55 30 55 55 55	2	7305 10340 9345 13835 11410 14950	760	50
LH3061-1 **LH3061-2** **LH3073-1** **LH3073-2**	3.0 x 6.1 3.0 x 6.1 3.0 x 7.3 3.0 x 7.3	1 2 1 2	55	2	12000 16540 13500 17800	950	50
LH3661-1 **LH3661-2** **LH3673-1** **LH3673-2**	3.6 x 6.1 3.6 x 6.1 3.6 x 7.3 3.6 x 7.3	1 2 1 2	55 55 55 90	2 2 2 3	14500 19000 15200 19800	1150	50
LH2461-2 SAG **LH2473-2 SAG**	2.4 x 6.1 2.4 x 7.3	2	75	2 x ML80	23900 25300	under consult	50
LH3073-2 SAG	3.0 x 7.3	2	75	2 x ML80	30060	under consult	50
LH3673-1 SAG **LH3673-2 SAG**	3.6 x 7.3	1 2	75 110	2 x ML80 3 x ML80	31400 40700	under consult	50
LH4273-1 SAG **LH4273-2 SAG**	4.2 x 7.3	1 2	110 185	3 x ML80 4 x ML80	38550 54145	under consult	50

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Horizontal LH dewatering screens

Metso dewatering screens are special versions of LH screens.
For utilizing of an efficient dewatering process these units are equipped with a dewatering back wall instead of a blind feed box as well as with an upwards inclined screen deck.

The design is similar to the standard LH screens. The bigger units are equipped with ML exciters, the smaller units have lighter deck frames and are driven by unbalanced motors (high frequency screens).

Options

- Polyurethane side plate coating (inside)
- Rubber lined side plates (inside)
- Modular PU panels)
- Wedge wire panels

Machine	W x L (m)	Deck(s)	Exciter	Power (kW)	Speed (rpm)	Weight (kg)	Maximum Solids Capacity (tph)		
							Coal (0.85 t/m³)	Sand (1.6 t/m³)	Iron Ore (2.4 t/m³)
							40-60% of solids	40-60% of solids	40-60% of solids
HF-0936	0.9 x 3.6	1	Vibrator motor	2 x 2.68	1440/50Hz - 1728/60Hz	1400	5 - 20	10 - 40	15 - 55
HF-1236	1.2 x 3.6	1	Vibrator motor	2 x 3.35	1440/50Hz - 1728/60Hz	1750	20 - 35	40 - 65	55 - 95
HF-1536	1.5 x 3.6	1	Vibrator motor	2 x 4.8	1440/50Hz - 1728/60Hz	2800	35 - 50	65 - 95	95 - 140
HF-1836	1.8 x 3.6	1	Vibrator motor	2 x 4.8	1440/50Hz - 1728/60Hz	2900	50 - 75	95 - 140	140 - 200
HF-2436	2.4 x 3.6	1	Vibrator motor	2 x 7.75	1440/50Hz - 1728/60Hz	3900	75 - 120	140 - 200	200 - 300
HF-3048	3.0 x 4.8	1	Vibrator motor	2 x 10.25	1440/50Hz - 1728/60Hz	10850	120 - 175	200 - 300	300 - 400
LH1848-DW	1.8 x 4.8	1	ML80	1 x 30	1000/50 & 60 Hz	10850	60 - 85	110 - 150	160 - 230
LH2448-DW	2.4 x 4.8	1	ML80	1 x 30	1000/50 & 60 Hz	12610	85 - 130	150 - 200	220 - 300
LH2461-DW	2.4 x 6.1	1	ML80	1 x 30	1000/50 & 60 Hz	15450	95 - 140	190 - 240	260 - 360
LH3061-DW	3.0 x 6.1	1	ML80	1 x 30	1000/50 & 60 Hz	18900	130 - 170	250 - 300	350 - 450

The above capacities are based upon the following application data:

- The feed to the screen will have not less than 40% solids w/w
- Screen surface aperture will be 0.5mm x 13.5mm cross flow with a minimum effective open area > 9%
- For coal the product moisture will be 25 to 30%*
- For sand the product moisture will be 15 to 20%*
- For iron ore the product moisture will be 12 to 14%*

* Usual range, the moisture content depending upon the feed size analysis, for very fine ore moisture can be higher.

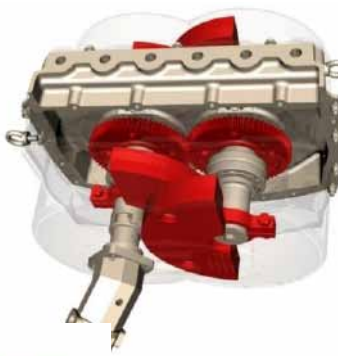
TK feeders and scalpers

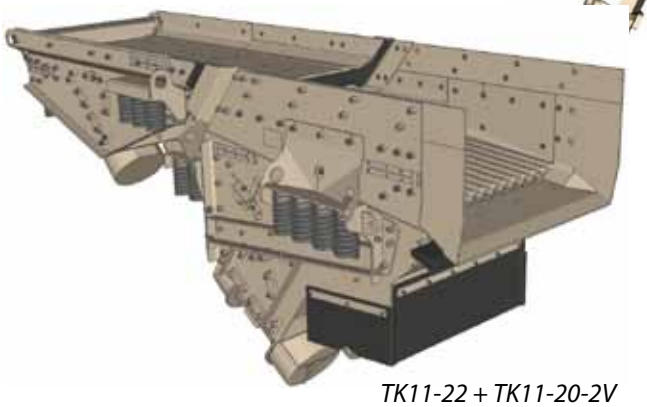
The Metso TK Series feeders and scalpers compliment Metso VF series feeders for compact primary plants.

They are mostly utilized in mobile units (tracks or wheels) but can also be easily installed in stationary plants.

The Metso TK series Feeders are very efficient in removing the waste material by the use of different types of grizzlies (vibrating rods, bars, grizzly cassettes, zig zag plates…)

User Friendly
The linear motion of Metso TK series Feeders is generated by the time proven **V150 & 175 exciters (hydraulic drive)** or by unbalanced motors (electrical drive).





TK11-22 + TK11-20-2V

Machines		W x L (m)	Vibrating machinery	Capacity (tph)	Maximum feed size (mm)	Compatibility	
Grizzly feeders	TK8-27-2V	0.8 x 2.7	El. unbalanced motors or V150 exciter (hyd. drive)	250	450	C80	
	TK8-32-2V	0.8 x 3.2	El. unbalanced motors or V150 exciter (hyd. drive)	300	450	C80	
	TK9-42-2V	0.9 x 4.2	El. unbalanced motors or V150 exciter (hyd. drive)	350	500	C96	
	TK11-42-2V	1.1 x 4.2	El. unbalanced motors or V175 exciter (hyd. drive)	500	700	C100, C106, C116, NP1213M	
	TK11-48-2V	1.1 x 4.8	Electrical unbalanced motors	500	700	C100, C106, C116, NP1213M	
	TK12-32-2V	1.2 x 3.2	El. unbalanced motors or V150 exciter (hyd. drive)	500	350	GP and HP from 300 to 550, NP1213, NP1110M	
Grizzly scalpers	TK10-15-2V	1.0 x 1.5	Electrical unbalanced motors	250	250	VF452-2V , VF461-1V	
	TK11-20-2V	1.1 x 2.0	Electrical unbalanced motors	500	700	TK11-22	
	TK11-27-3V	1.1 x 2.7	Electrical unbalanced motors	500	700	TK11-22	
	TK13-20-3V	1.3 x 2.0	Electrical unbalanced motors	350	250	VF561-1V	
	TK16-20-3V	1.6 x 2.0	Electrical unbalanced motors	500	250	VF661-2V, VF866-1V	
Pan feeders	TK08-32	0.8 x 3.2	Electrical unbalanced motors	250	450		Primary, secondary or tertiary crushers
	TK10-15	1.0 x 1.5	Electrical unbalanced motors	300	170	TK10-15-2V	
	TK10-20	1.0 x 2.0	Electrical unbalanced motors	350	170	TK10-15-2V	
	TK11-22	1.1 x 2.2	Electrical unbalanced motors	500	700	TK11-20-2V	
	TK12-26	1.2 x 2.6	Electrical unbalanced motors	500	170	TK11-27-3V	
	TK16-27	1.6 x 2.7	Electrical unbalanced motors	500	500		

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

VF Feeders

The Metso VF Primary Feeders have been designed for the toughest applications, high capacity and able to process abrasive material, either in stationary or mobile plants.

Features

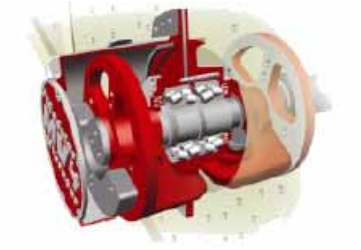
- Speed and stroke is adjustable: better feed control of the primary crusher
- Long stroke capability: better scalping efficiency (when feed material contains high ratio of flaky material)

User Friendly

- Rubber suspensions: smoother shut down, safer, noiseless
- **MV** vibrators
- Easy and fast scalping adjustability

Options

- Electrical or Hydraulic drive
- Pan Bottom liners can be either steel or rubber
- Vibrating chute (underneath grizzly sections)
- Automatic greasing system



Machine	W x L (m)	Power (kW)	MV vibrator	Capacity (tph)	Maximum feed size (mm)	Weight (kg)	Compatibility with crushers (see page 21)
VF452-2V	1.1 x 5.2	15	MV2	450	700	5750	C80, C100, C110, NP1313
VF561-2V	1.3 x 6.1	30	MV3	750	900	7000	C110, C120, C125, C3054 NP1415
VF661-2V	1.6 x 6.1	30	MV3	1000	1200	10500	C140, C145, NP1415 C160, NP1620
VF866-2V	2.0 x 6.6	55	2 x MV3	1800	1500	15000	C160, C200, NP1620, NP2023

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

LH.G Feeders and Grizzly's

Metso LH Series feeders are extra heavy duty **Vibrating Feeders, Pan Feeders** and **Grizzly Scalpers**, used in a wide range of primary applications.

Design

The LH feeders design incorporates huck-bolted construction to eliminate stress points and improve structural integrity. Others features include heavy duty construction, abrasion resistant wear protection and compact overall height.

The LH series feeders are built using the latest engineering techniques, such as Finite Element Analysis. As a result, high reliability and long component life even the most demanding application is guaranteed.

Metso LH series feeders utilize the time proven **ML exciters** (linear motion)

Machine	W x L (m)	Power (kW)	Weight (kg)	ML exciter (qty)	Speed (rpm)	Capacity (tph)
LH 1848-1G	1.8 x 4.8	37	9980	2	450-900	1500
LH 1861-1G	1.8 x 6.1	37	11565	2	450-900	1800
LH 2142-1G	2.1 x 4.2	37	10975	2	450-900	2000
LH 2148-1G	2.1 x 4.8	37	11675	2	450-900	2250
LH 2161-1G	2.1 x 6.1	55	12700	2	450-900	2500
LH 2461-1G	2.4 x 6.1	55	16800	2	450-900	3000
LH 2473-1G	2.4 x 7.3	75	18000	2	450-900	3250
LH 2485-1G	2.4 x 8.5	75	21500	2	450-900	3500
LH 3061-1G	3.0 x 6.1	90	24500	3	450-900	3800
LH 3073-1G	3.0 x 7.3	90	27000	3	450-900	4000

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

VG scalpers

The Metso VG primary scalpers have been designed for toughest applications, high capacity and able to process abrasive material, either in stationary or mobile plants.
The Metso primary Scalpers are able to maximize the efficiency of the primary plant across wide variations in application.

Integration in primary scalping section
The Metso VG Primary Scalpers can be fed by different types of feeders: push feeders, apron feeders, vibrating pan feeder.

Features
- Speed and stroke is adjustable
- Long stroke capability: better scalping efficiency (when feed material contains high ratio of flaky material)
- Linear vibration with high G force (5,5G)
- Scalping grizzlies are inclined slightly at 5°: reduced blinding when feed is sticky and contains fines (increased capacity)

User Friendly
- Rubber suspensions: smoother shut down, safer, noiseless
- **MV** vibrators
- Easy and fast scalping adjustability

Options
- Electrical or Hydraulic drive
- Automatic greasing device

Machine	W x L (m)	Power (kW)	MV vibrator	Capacity (tph)	Maximum feed size (mm)	Compatibility with crushers (see page 21)
VG527-2V	1.3 x 2.7	15	MV2	500	900	C100, C110, C125, C3054
VG540-3V	1.3 x 4.0	15	MV2	600	900	NP1315M, NP1415M, NP1313, NP1415
VG635-3V	1.6 x 3.5	22	MV3	750	1000	C140, NP1415
VG645-3V	1.6 x 4.5	30	MV4	1000	1200	C140, NP1415
VG745-3V	1.8 x 4.5	30	MV4	1200	1350	C160, NP1620
VG860-4V	2.0 x 6.0	55	2 x MV3	1500	1500	C160, C200, NP1620, NP2023

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

PF pan feeders

The Metso PF Primary pan feeders have been designed for toughest applications, high capacity and able to process abrasive material, either in stationary or mobile plants.

The Metso primary pan feeders are able to maximize the efficiency of the primary plant across wide variations in application.

Integration in primary feeding section

The Metso PF primary pan feeders can feed different types of grizzly scalpers (VG) or grizzly screens.

Features

- Speed and stroke is adjustable
- Linear vibration with high G force (5G): reduced building when feed is sticky and contains fines (increased capacity)

User Friendly

- Rubber suspensions: smoother shut down, safer, noiseless
- **MV** vibrators

Options

- Pan rubber liners
- Electrical or Hydraulic drive
- Automatic greasing system

Machine	W x L (m)	Power (kW)	MV vibrator	Capacity (tph)	Maximum feed size (mm)	Compatibility with crushers (see page 21)
PF525	1.3 x 2.5	11	MV1	500	900	VG527-2V
PF561	1.3 x 6.1	15	MV2	600	900	VG540-3V
PF635	1.6 x 3.5	15	MV2	750	1000	VG635-3V
PF661	1.6 x 6.1	30	MV3	1000	1200	VG745-3V

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

HRBM push feeders

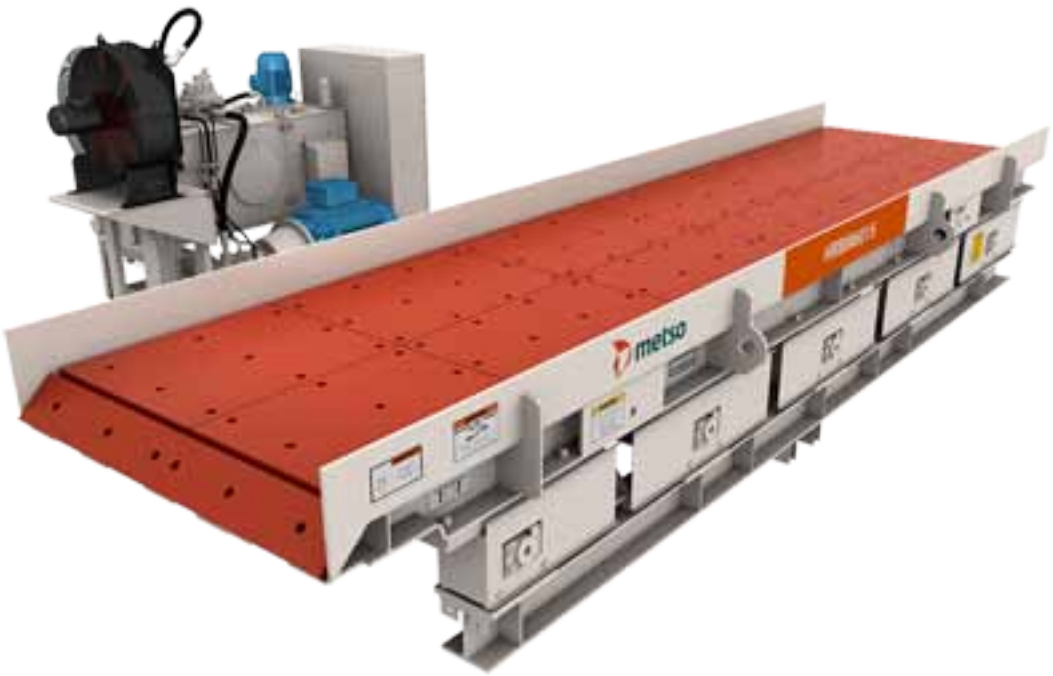
Metso HRBM Series push feeders are extra heavy duty feeders used in a wide range of primary applications.

Proportional hydraulic system permits the accurate control of feed. Acceleration and deceleration at the beginning and at the end of a cycle are also controlled in order to avoid brutal stops during the feed.

Automatic hydraulic unit can be managed and driven by external PLC.

Options

- Centralized greasing point



Machine	W x L (m)	Power (kW)	Capacity (tph)	Maximum feed size (mm)	Compatibility with grizzly scalpers	Compatibility with crushers
HRBM 6012	1.2 x 6.0	45	600	700	VG540-3V	C100, C110, C125, NP1313
HRBM 6015	1.5 x 6.0	55	900	900	VG645-3V	C125, C140, C145, NP1415
HRBM 6517	1.7 x 6.5	75	1100	1050	VG745-3V	C160, NP1620
HRBM 7019	1.9 x 7.0	90	1300	1200	VG860-4V	C160, C200, NP1620, NP2023

**Note: max feed rate values are given for material bulk density 1.6t/m³ in dry conditions and are indicative only.*

Jaw Crushers

Jaw Crusher	Feeder	Separate Grizzly Scalper	2nd separation (underneath VF)	Capacity (tph)	Feed size (mm)	Recommended for	
						Sticky material	A lot of fines
C80	TK08-32-2V	No	Integrated 2nd deck on TK08-32	300	450		
C96	TK09-42-2V	No	Integrated 2nd deck on TK09-32	350	500		
C100	TK11-42-2V VF452-2V	No No	Integrated 2nd deck on TK11-42 TK10-15	500 350	700 600		
C106	TK11-42-2V	No	Integrated 2nd deck on TK11-42	500	700		
C110	VF452-2V VF561-2V PF525	No No VG527-2V	TK10-15 TK13-20 Integrated 2nd deck on VG527	350 400 500	600 700 700		X
C116	TK11-48-2V	No	Integrated 2nd deck on TK11-48	500	700		
C120 **C125**	VF561-2V PF561 HRBM 60-12	No VG540-3V VG540-3V	TK13-20 TK13-20 TK13-20	600 700 700	800 800 800	X	X
C3054							
C140 **C145**	VF661-2V PF661 HRBM 60-15	No VG645-3V VG645-3V	TK16-20 TK16-20 TK16-20	800 1000 1000	900 900 900	X	X
C160	VF661-2V PF661 VF866-2V HRBM 65-17 Apron feeder	No VG645-3V No VG745-3V LH 1848	Separate screen	900 1000 1200 1200 1500	1000 1000 1000 1000 1200	X	X X X
C200	VF866-2V HRBM 70-19 Apron feeder	No VG860-4V LH 2148	Separate screen	1500 1500 2250	1200 1200 1200	X	X X

Impact Crushers

Impact Crusher	Feeder	Scalper	2nd scalper	Capacity (tph)	Feed size (mm)	Recommended for	
						Sticky material	A lot of fines
NP1313	VF561-2V PF561	No VG540-3V	TK13-20 TK13-20	500 600	800 800		X
NP1415	VF661-2V PF661 HRBM 60-15	No VG645-3V VG645-3V	TK16-20 TK16-20 TK16-20	700 900 900	1000 1000 1000	X	X
NP1620	VF661-2V HRBM 65-17	No VG745-3V	TK16-20 Separate screen (CVB or FS)	900 1200	1100 1300	X	X
NP2023	VF866-2V HRBM 70-19	No VG860-4V	Separate screen (CVB)	1500 1500	1500 1500	X	X

Notes

Metso's Mining and Construction crushing and screening equipment

Product families:

Unit crushers

- C series jaw crushers
- Primary gyratory crushers
- GP series cone crushers
- HP series cone crushers
- MP series cone crushers
- NP series horizontal impact crushers
- Barmac series vertical impact crushers

Unit screens

- DF series screens
- CVB series screens
- FS series screens
- TS series screens
- MF series screens
- RF series screens

Unit feeders

- TK series feeders
- VF series feeders
- LH.G series feeders
- VG series feeders
- PF series feeders
- HRBM series feeders

Mobile crushing and screening plants

- Lokotrack LT series track-mounted crushing plants
- Lokotrack ST series track-mounted screening plants
- Lokotrack CT and CW series track- and wheel-mounted conveyors
- NW series wheel-mounted crushing plants

Stationary crushing plants

- Complete plants for aggregate production
- Complete plants for recycling applications

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