

Industrial Solutions

Linear vibrating screens

The optimum solution for difficult material



thyssenkrupp



Precise classification for perfect results

Sifting out the unwanted to meet your requirements: screening plants from thyssenkrupp Industrial Solutions offer the ultimate in performance, reliability and cost-effectiveness. With us as your partner, you can expect the optimum, customized solution for even the most demanding of jobs.

Call on our services and you can count on a wealth of experience and constant innovative drive. As a leading manufacturer of machines and plants for the aggregates and mining industry, we supply well-engineered screening plants that have stood the test of time in the hardest service conditions. At the same time, we invest in intensive research and development work to make proven solutions even better and to adapt to changing demands.



Whether a standard or special design thyssenkrupp Industrial Solutions can provide the optimum solution to meet your needs. Our flexibility is a major plus: We act on your specific requirements and adapt our systems to suit the material to be screened and the product size required, optimizing proven technology according to your specifications. The benefits of our systems are numerous: high throughput coupled with low costs, minimum maintenance, ease of operation and maximum reliability.

Linear vibrating screen
Type DU 64 – 4.0 x 9.6 (10.5) ED
for sizing oil sand 0 – 600 mm
Screening capacity 10,000 t/h
Cut size 100 mm

Fields of application and design characteristics

thyssenkrupp offers a wide range of linear vibrating screens with state-of-the-art, robust designs that provide the optimum solution for difficult materials. Equipped with twin out-of-balance drive units, thyssenkrupp linear vibrating screens are available for coarse or fine sizing as well as wet screening.

The latest generation of DU-type linear vibrating screens equipped with twin out-of-balance drive units have screen widths ranging from 800 up to 5,500 mm and screen lengths from 2,000 up to 12,000 mm.

Able to handle increased feed rates and the diverse requirements associated with scalping, sizing, dewatering, depulping and deslurrying aggregates such as hard rock, limestone, gravel, coal, ore, oil sand and salt, this state-of-the-art screening technology is thyssenkrupp at its best.

Tailoring the machines to the respective requirements and operating conditions optimizes the screening result.

The linear vibrations are generated by twin out-of-balance drive units manufactured by thyssenkrupp.

Advantages

- Constant, infinitely variable stroke
- Low overall height as screens can be installed horizontally
- Drive unit can be installed either at the top or the bottom
- Optimum adaptation to the particular screening job by changing the angle of throw
- Easy-to-replace drive unit
- Replacement service for the twin out-of-balance drive units manufactured by thyssenkrupp



Step-deck linear vibrating screen for oil sand
Type DU 64 – 3.6 x 8.0 (8.9) ED

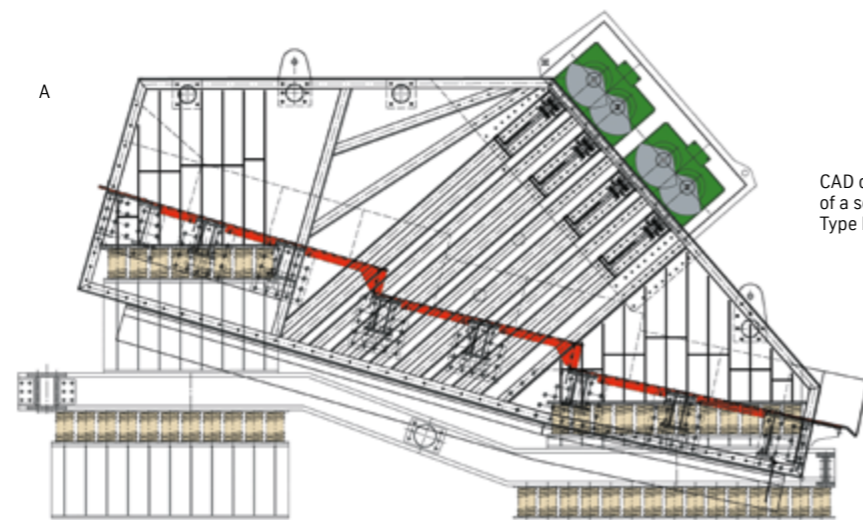
Design features

Depending on the application, either conventional or HuckBolts are used in the screen body and the main subassemblies, i.e. side walls, supporting structure and drive crossbar. The machine design allows the use of screen media from a wide range of manufacturers.

Screen media options available include cross-tensioned perforated plate, thick bolt-down perforated plate, bars, cross-tensioned and longitudinally tensioned woven wire mesh, rubber and plastic. Modular systems for replacing welded wedge-wire screens, or rubber, plastic, perforated plate or woven wire mesh panels are also available.



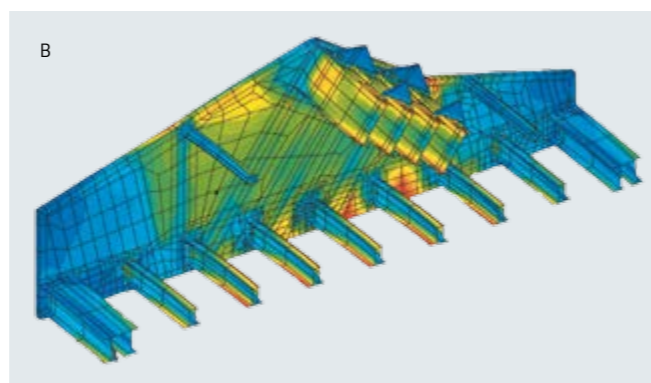
Isolation frame with helical compression springs and rubber buffers



CAD drawing of a screen machine (Fig. Page 3)
Type DU 64 – 3.6 x 8.0 (8.9) ED

The design documents are always prepared using a CAD system (Fig. A). Subassemblies are dimensioned on the basis of finite element analyses (Fig. B) and test bench vibration measurements during the test run.

Robust helical compression springs and rubber buffers are used for optimum vibration isolation. If necessary, an additional vibration isolation frame is used to further reduce the forces acting on the base.



Finite element analysis of a screen machine (Fig. Page 2)

Grizzly screens

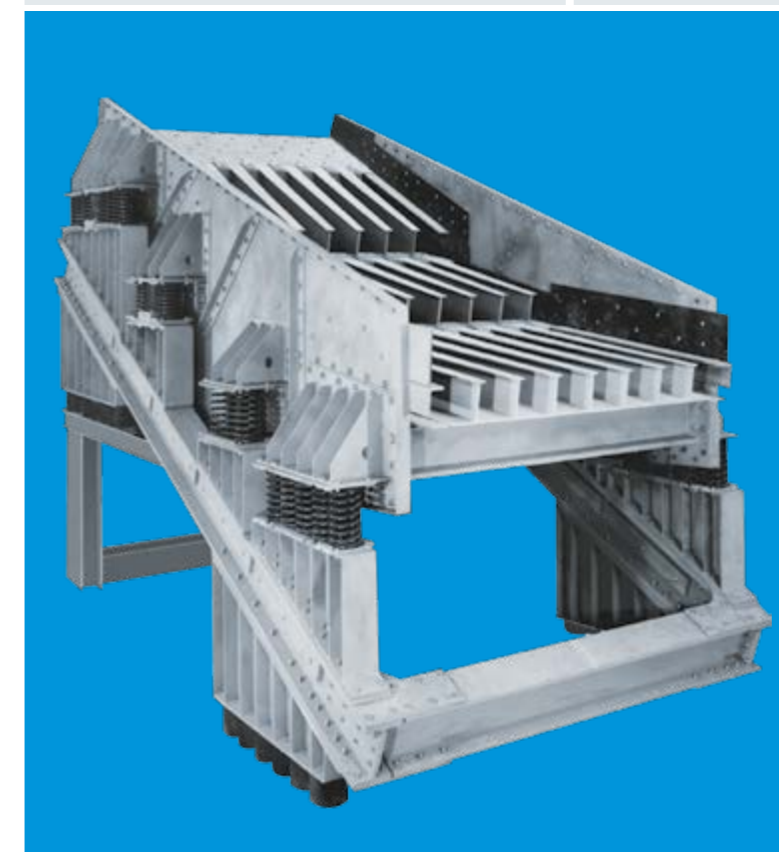
Grizzly screens are used as scalpers and feed units upstream of crushers and mills or for coarse sizing. Depending on the application, they may have one or two decks and also be equipped with a conveying trough and a vibration isolation frame.

The screens are driven by twin out-of-balance drive units of the sizes 0.5 – 4. Depending on the application, bar screens or perforated plates of various designs and materials can be used as screen media.



Right:
Grizzly scalper

Below: Grizzly screen	
Type DU-Stk 33 – 3.1 x 7.75	
Screening capacity	8,000 t/h
Overburden	0 – 1,000 / 2,000 mm
Cut size	250 mm

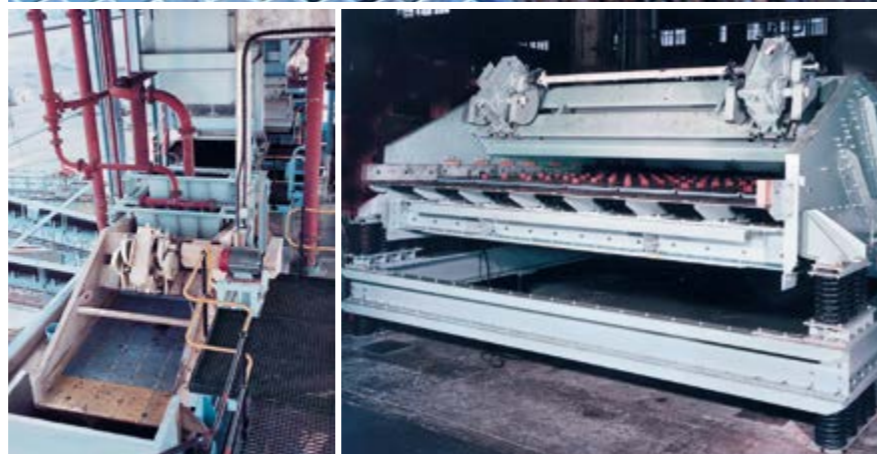


Above: Grizzly screen
Type DU-Stk 34 – 3.6 x 4.5 (6.0) ED
Screening capacity 7,000 t/h
Limestone 0 – 1,500 mm
Cut size 140 mm

Dewatering, depulping and deslurrying screens

Linear vibrating screens for wet screening aggregates, pulps and slurries are used for the following purposes:

- Dewatering wet or wet-screened materials for transportation by belt conveyor or loading
- Depulping to recover dense liquid or to feed thin pulps to a magnetic separator, cut point approx. 0.5 mm
- Deslurrying of suspensions with cut points of approx. 0.1 – 1 mm



From above:

Linear vibrating screen
Type DU 11 – 1.5 x 3.6 (3.9) ED

Screening capacity 225 t/h
Gravel 4 – 32 mm
Dewatering Cut point 2 mm

Linear vibrating screen
Type DU 12 – 1.5 x 4.8 (5.5) ED

Screening capacity 110 m³/h pulp
Depulping Cut point 0.5 mm

Linear vibrating screen
Type DU 22 – width 4,500 mm for deslurrying coal

Screening capacity 300 t/h
Coal 0 – 6 mm
Deslurrying Cut point 0.5 mm

Sizing screens

One of the most wide-ranging tasks in the mechanical processing of aggregates is screen sizing.

The standardized subassembly system features screen widths of up to 3,200 mm and screen lengths of up to 9,000 mm as single or multiple-deck models for dry or wet sizing. When it comes to sizing thin layers at a high feed rate, our specially designed banana screens are the right choice. Depending on the application, there are different types of tensioned and flat screen media made of different materials to provide the optimum solution for screening granular aggregates.

Additional equipment

- Dust hoods
- Rapping mechanisms
- Spray systems



From above:

Banana screen, Type DU 23 – 3.6 x 8.0 (8.9) 1 D
Screening capacity 1,900 t/h
Limestone/slate 0 – 100 mm
Cut size 19 mm

Banana screen, Type DU 13 – 2.0 x 7.6 (8.5) ED
Screening capacity 600 t/h
Limestone 0 – 100 mm
Cut size 40 mm

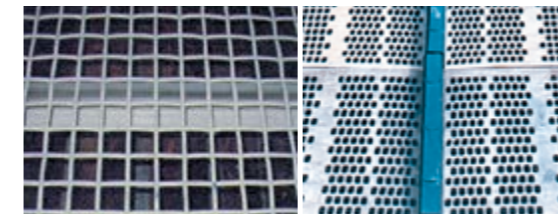
Linear vibrating finger screen, Type DU 13 – 1.8 x 5.0 (6.0) ED
Screening capacity 720 t/h
Limestone 0 – 150/300 mm
Cut size 30 mm

Linear vibrating screen, Type DU 22 – 2.2 x 10.45 (11) ED
Screening capacity 300 t/h
Run-of-mine coal 0 – 80 mm
Cut size 4/37 mm



Perforated plates

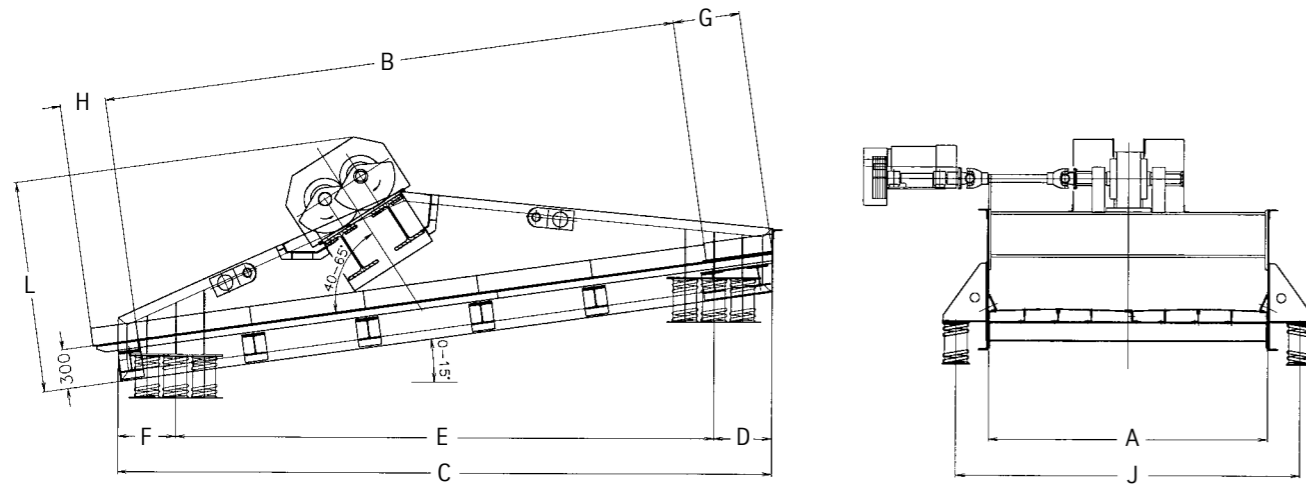
Plastic modular systems



Woven wire mesh

Cross-tensioned rubber media

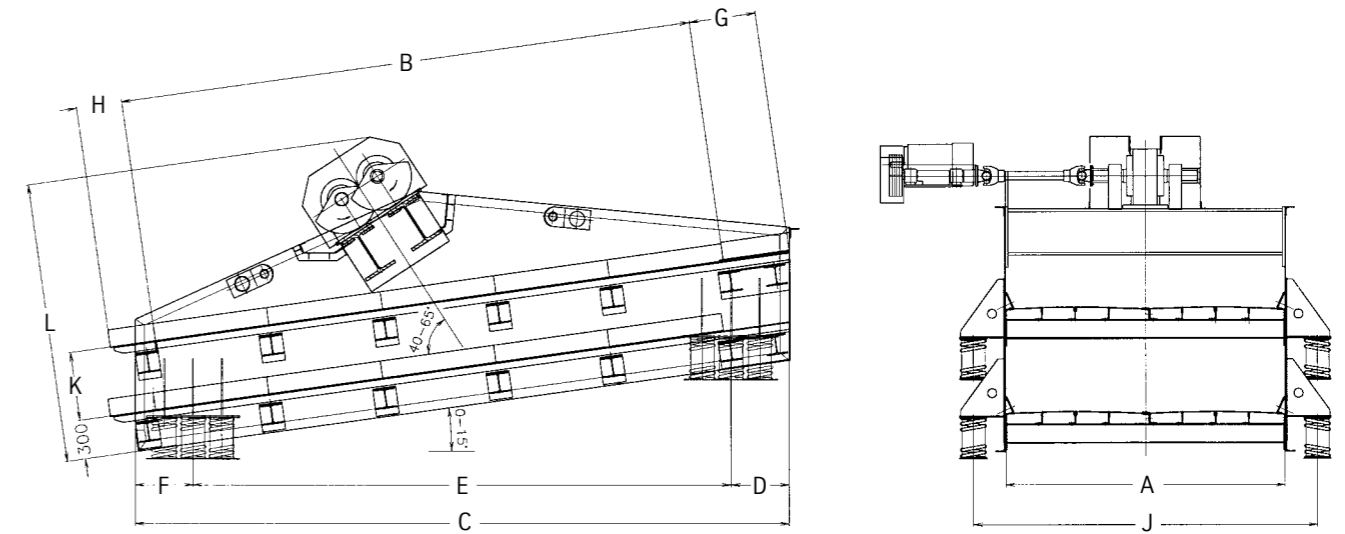
Standard single-deck screens



A	B	C	D	E	F	G	H	J	L	Number of partitioned sections	Length of partitioned sections	Arrangement of drive unit	N req. (kW) 800 r.p.m.
1,400	3,000	3,600	180	3,270	150	350	250	1,900	1,300	3	1,000	DU 105	-
	4,000	4,400	180	4,070	150	350	250	1,900	1,300	4	1,000	DU 105	-
	5,000	5,600	180	5,270	150	350	250	1,900	1,300	5	1,000	DU 11	15
1,600	4,000	4,600	180	4,270	150	350	250	2,100	1,300	4	1,000	DU 11	15
	5,000	5,600	180	5,270	150	350	250	2,100	1,300	5	1,000	DU 11	15
	6,000	6,600	180	6,270	150	350	250	2,100	1,300	6	1,000	DU 11	15
1,800	4,000	4,600	180	4,270	150	350	250	2,300	1,300	4	1,000	DU 11	15
	5,000	5,600	180	5,270	150	350	250	2,300	1,300	5	1,000	DU 11	15
	6,000	6,600	180	6,270	150	350	250	2,300	1,300	6	1,000	DU 11	15
2,000	4,000	4,600	180	4,270	150	350	250	2,500	1,300	4	1,000	DU 11	15
	5,000	5,600	180	5,270	150	350	250	2,500	1,300	5	1,000	DU 11	15
	6,000	6,600	180	6,270	150	350	250	2,500	1,400	6	1,000	DU 12	18.5
2,200	4,000	4,800	380	4,220	200	500	300	2,700	1,300	4	1,000	DU 11	15
	5,000	5,800	380	5,220	200	500	300	2,700	1,400	5	1,000	DU 12	18.5
	6,000	6,800	380	6,220	200	500	300	2,700	1,400	6	1,000	DU 12	18.5
2,500	4,000	5,800	380	5,220	200	500	300	3,000	1,400	5	1,000	DU 12	18.5
	6,000	6,800	380	6,220	200	500	300	3,000	1,400	6	1,000	DU 12	18.5
	7,000	7,800	380	7,220	200	500	300	3,000	1,500	7	1,000	DU 12	18.5
2,800	5,000	5,800	380	5,220	200	500	300	3,300	1,450	5	1,000	DU 12	18.5
	6,000	6,800	380	6,220	200	500	300	3,300	1,450	6	1,000	DU 12	18.5
	7,000	7,800	380	7,220	200	500	300	3,300	1,500	7	1,000	DU 13	22
3,200	5,000	5,800	380	5,220	200	500	300	3,700	1,500	5	1,000	DU 13	22
	6,000	6,800	380	6,220	200	500	300	3,700	1,600	6	1,000	DU 13	22
	7,000	7,800	380	7,220	200	500	300	3,700	1,600	7	1,000	DU 13	22
	8,000	8,800	380	8,220	200	500	300	3,700	1,600	8	1,000	DU 14	37
	9,000	9,800	380	9,220	200	500	300	3,700	1,600	9	1,000	DU 14	37

All dimensions in mm

Standard double-deck screens



A	B	C	D	E	F	G	H	J	K	L	Number of partitioned sections	Length of partitioned sections	Arrangement of drive unit	N req. (kW) 800 r.p.m.
1,400	3,000	3,600	180	3,270	150	350	250	1,900	550	1,600	3	1,000	DU 11	15
	4,000	4,400	180	4,070	150	350	250	1,900	550	1,750	4	1,000	DU 11	15
	5,000	5,600	180	5,270	150	350	250	1,900	550	1,750	5	1,000	DU 11	15
1,600	4,000	4,600	180	4,270	150	350	250	2,100	550	1,850	4	1,000	DU 11	15
	5,000	5,600	180	5,270	150	350	250	2,100	550	1,850	5	1,000	DU 12	18.5
	6,000	6,600	180	6,270	150	350	250	2,100	550	1,850	6	1,000	DU 12	18.5
1,800	4,000	4,600	180	4,270	150	350	250	2,300	600	1,850	4	1,000	DU 12	18.5
	5,000	5,600	180	5,270	150	350	250	2,300	600	1,850	5	1,000	DU 12	18.5
	6,000	6,600	180	6,270	150	350	250	2,300	600	1,850	6	1,000	DU 12	18.5
2,000	4,000	4,600	180	4,270	150	350	250	2,500	600	1,850	4	1,000	DU 12	18.5
	5,000	5,600	180	5,270	150	350	250	2,500	600	1,850	5	1,000	DU 12	18.5
	6,000	6,600	180	6,270	150	350	250	2,500	600	1,900	6	1,000	DU 13	22
2,200	4,000	4,800	380	4,220	200	500	300	2,700	600	1,850	4	1,000	DU 12	18.5
	5,000	5,800	380	5,220	200	500	300	2,700	600	1,850	5	1,000	DU 13	22
	6,000	6,800	380	6,220	200	500	300	2,700	600	2,050	6	1,000	DU 13	22
2,500	4,000	5,800	380	5,220	200	500	300	3,000	650	1,950	5	1,000	DU 13	22
	6,000	6,800	380	6,220	200	500	300	3,000	650	1,950	6	1,000	DU 13	22
	7,000	7,800	380	7,220	200	500	300	3,000	650	2,000	7	1,000	DU 14	37
2,800	5,000	5,800	380	5,220	200	500	300	3,300	650	1,950	5	1,000	DU 13	22
	6,000	6,800	380	6,220	200	500	300	3,300	650	2,000	6	1,000	DU 14	37
	7,000	7,800	380	7,220	200	500	300	3,300	650	2,000	7	1,000	DU 14	37
3,200	5,000	5,800	380	5,220	200	500	300	3,700	650	2,000	5	1,000	DU 14	37
	6,000	6,800	380	6,220	200	500	300	3,700	650	2,100	6	1,000	DU 14	37
	7,000	7,800	380	7,220	200	500	300	3,700	650	2,100	7	1,000	DU 23	45
	8,000	8,800	380	8,220	200	500	300	3,700	650	2,100	8	1,000	DU 23	45
	9,000	9,800	380	9,220	200	500	300	3,700	650	2,100	9	1,000	DU 24	55

All dimensions in mm

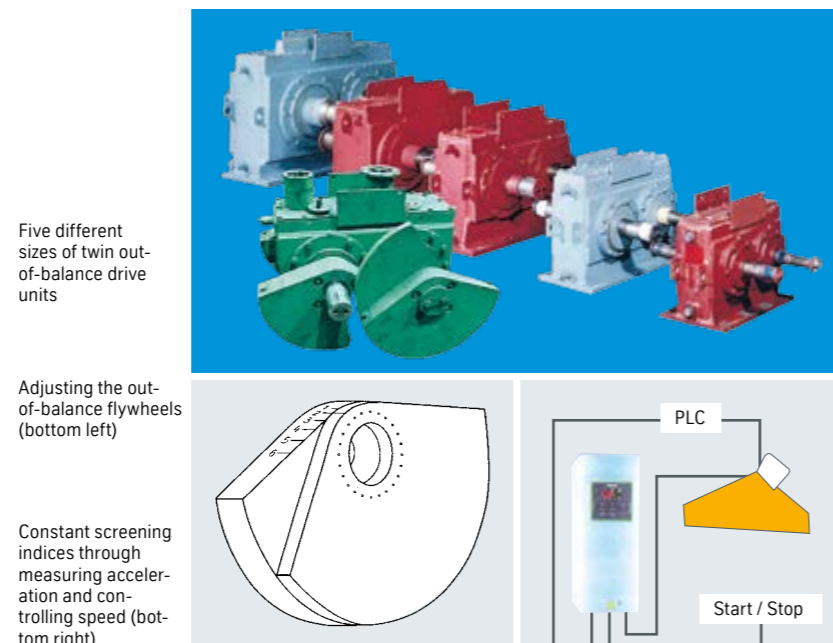
Apart from the standard screen sizes given, shorter or longer screens can be provided by varying the panels accordingly.

Twin out-of-balance drive units

The linear vibrations are generated by twin out-of-balance drive units with adjustable out-of-balance flywheels.

Five drive unit variants are available. The size and how many are used depend on the job to be done and the vibrating weight of the screen machine.

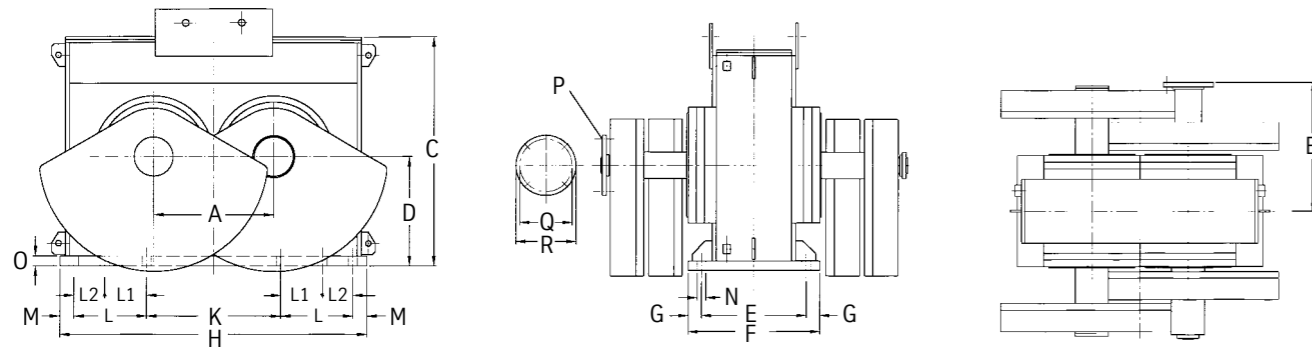
The drive units are operated via a non-vibrating V-belt countershaft with a Cardan shaft or by means of a Cardan shaft which is directly coupled to the motor. If directly driven, the speed of the motor can be varied by means of an optional frequency converter. The use of an electric braking unit enables rapid deceleration through the motor's critical speeds.



Five different sizes of twin out-of-balance drive units

Adjusting the out-of-balance flywheels (bottom left)

Constant screening indices through measuring acceleration and controlling speed (bottom right)



Size	A	B	C	D	E	F	G	H	K	L	M	N	O	P	Q	R	Torque ¹⁾ (kg cm)	Weight ²⁾ (kg)
0.5	225	332	392	210	245	300	27.5	540	150	150	45	Ø 26	20	Ø 11	101.5	120	2,080	250
1	270	380	467	245	245	300	27.5	650	170	200	40	Ø 26	25	Ø 11	101.5	120	4,640	690
2	330	401.5	522	300	290	340	25	800	230	220	65	Ø 26	30	Ø 14	130	150	8,160	1,050
3	370	466	532	290	334	390	28	880	250	230	85	Ø 33	35	Ø 16	155.5	180	11,680	1,490
4	430	570	815	390	390	490	50	1,100	4 x 120	L1 150	50	Ø 33	35	Ø 16.1	196	225	18,480	2,630
										L2 110								

All dimensions in mm ¹⁾ dynamic torque at 750 rpm ²⁾ Weight with out-of-balance flywheels and guards

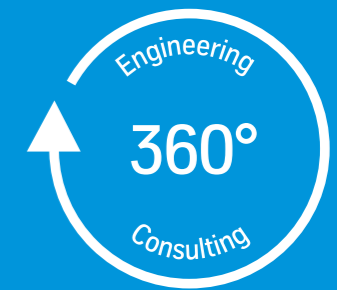
Services that back up your quality

We offer our customers not only optimum, customized technical solutions, but also comprehensive, tailored service ranging from the engineering of individual machines and entire plants to their operation, and modification if needed.

Whenever you need us, the maintenance and repair crews from thyssenkrupp Industrial Solutions are on hand to cater to your needs, from specialist advice, inspections and modifications through modernizations and performance enhancement to damage analyses and repairs, which are performed exclusively by our highly qualified assembly personnel using high-quality, certified spare parts. You can call on these services not only for machines from our own production lines, but also for those manufactured by other suppliers.

Increase the productivity of your machines and plants! Call on our service team today.

One-stop-shop service



-  Asset Management
-  Spare Parts Supply & Management
-  Service Center & Field Services
-  Revamps



- From above:
- Design and engineering
- thyssenkrupp control and diagnostic system
- Easy replacement of screen media without special tools
- Adjusting the out-of-balance flywheels

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