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Infrastructure

Machinery and equipment from a single source.

Product range
Machinery, USA



thyssenkrupp

MS-35H3



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Integrated solutions for civil and foundation engineering.

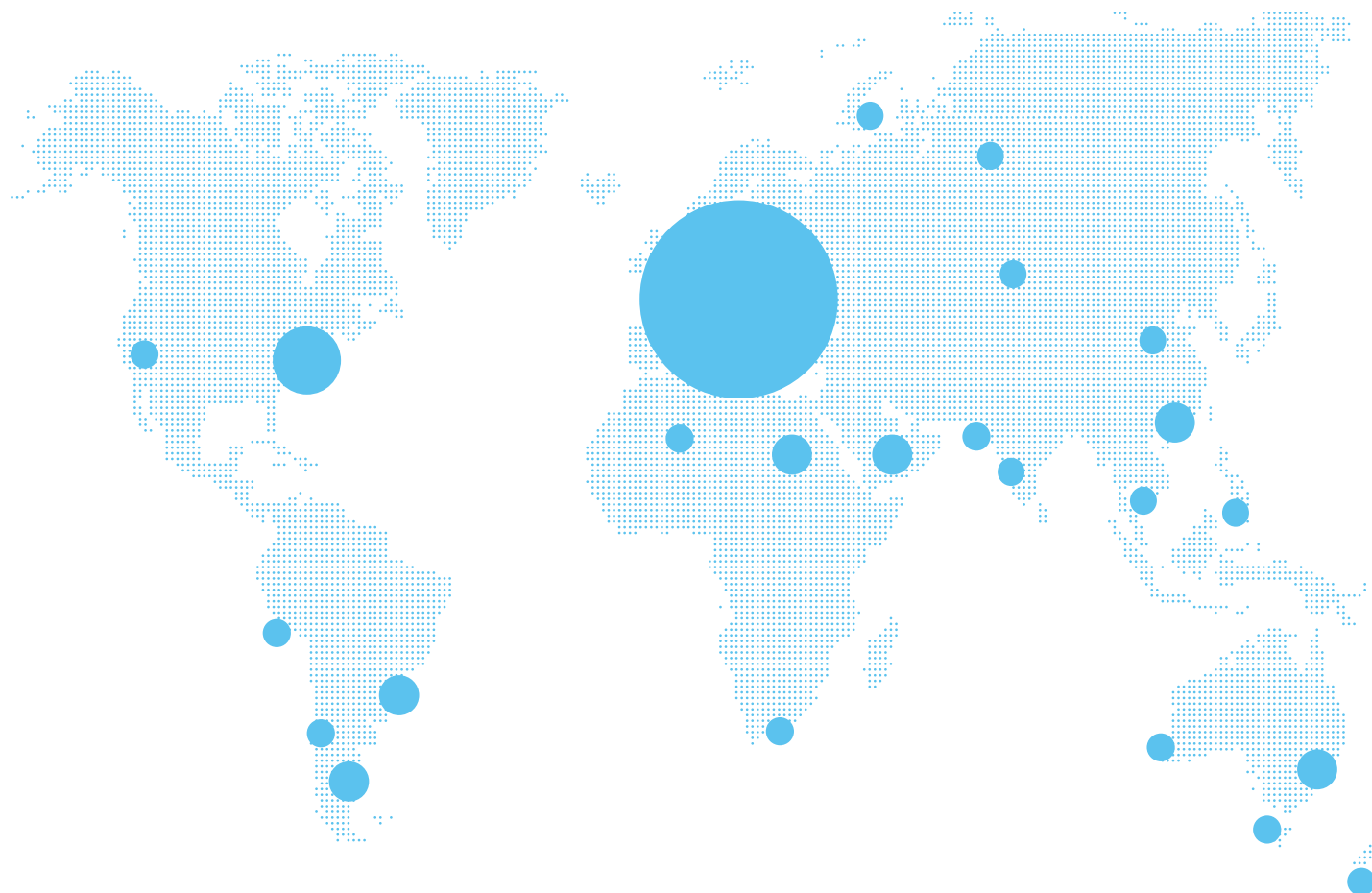
Whether it's about mobility, urbanization, climate change or resource efficiency: As a leading supplier of civil, marine and foundation engineering solutions, we cover the full range of services for global infrastructure projects. Our portfolio is organized into four divisions: steel sections, machinery, trench shoring and scaffolding systems.

We see ourselves as a full-service supplier to the construction industry. We support and advise our customers all the way, developing solutions precisely tailored to the job in hand. For this we can rely on the expert support of our own consulting engineers.

We provide our customers with all the products they need to execute their projects. Most of these products come from our own production, such as MÜLLER pile driving and extracting equipment and tkL cold formed sections.

We are the exclusive distributors of tk-ASF anchor equipment and Emunds+Staudinger | KRINGS trench shoring systems.

With offices throughout the world we are present wherever our customers need us. We know the local markets and their requirements and can provide tailored advice in the field, a key advantage especially in after-sales service.



Steel sections.

Key elements of our integrated range of system solutions are the sale and hire of steel sheet piling, anchor equipment, and flood protection systems. As a multi-supplier, we provide a broad range of products from various manufacturers, supplemented by a comprehensive service package of consulting, technical support, logistics, and leasing.



Steel sections

Sheet piling has a diverse range of uses, extending from water, road, and civil engineering to environmental protection. Our portfolio of products and services is just as diverse.

Hot-rolled steel sheet sections

- U sections
- Z sections
- Straight web sections
- Combined steel sheet piling
- Steel piles
- Box piles
- Intermediate piles

Cold-rolled steel sheet sections

- Trench sheeting
- Lightweight sections

Sealing systems

- tk interlock sealing system
- Bitumen-based interlock sealants
- Other sealing methods

Pipe piles

Beams

Special and regular services

- Corrosion protection
- Fabrication
- Custom sections

Anchor equipment

We provide a comprehensive range of anchors and accessories to meet a wide range of challenges.

- tk-ASF drilled injection piles
- Micropiles
- Soil nails
- Anchor piles
- Round steel tie rods

Flood protection

As an end-to-end service provider with a high level of expertise in marine and foundation engineering we offer our customers a broad spectrum of highly efficient flood protection systems for both permanent and temporary use.

Permanent flood protection systems

- Steel sheet pile walls
- Sheet piling modules
- tkR glass wall system

Temporary flood protection systems

- tkR aluminum stop log system
- Fold-up flood protection system
- Stop panel system
- Building protection – gates and doors

Environmental protection und sustainability.

We place great emphasis on sustainability. Our steel products meet the highest environmental performance standards. They are produced with minimum energy consumption, are eco-friendly in use, straightforward to dismantle, and virtually 100% recyclable. Our driving and extracting equipment is quiet and low on CO₂ emissions.

MÜLLER vibrators.

Proven power “made in Germany”.

MÜLLER vibrators have a proven track record in civil engineering stretching back more than 50 years. As leading-edge vibratory products they meet all market requirements. Suitable for a wide range of applications, their reliability and constant development make them a relevant market factor.



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Parameters, equipment selection and operating principle.

Choosing the right machine is crucial for the economic and technical success of vibratory driving. In order to find the most suitable equipment, we offer our customers individual support that takes into account all relevant factors, i.e., the site conditions plus the geological and engineering requirements.

Parameters

Selecting a suitable vibrator essentially depends on the size and weight of the pile section, the embedment depth, and the type of soil. Basically, the centrifugal force and the amplitude must be chosen in such a way that the skin friction and tip resistance between the pile section and the surrounding soil can be overcome.

Equipment selection

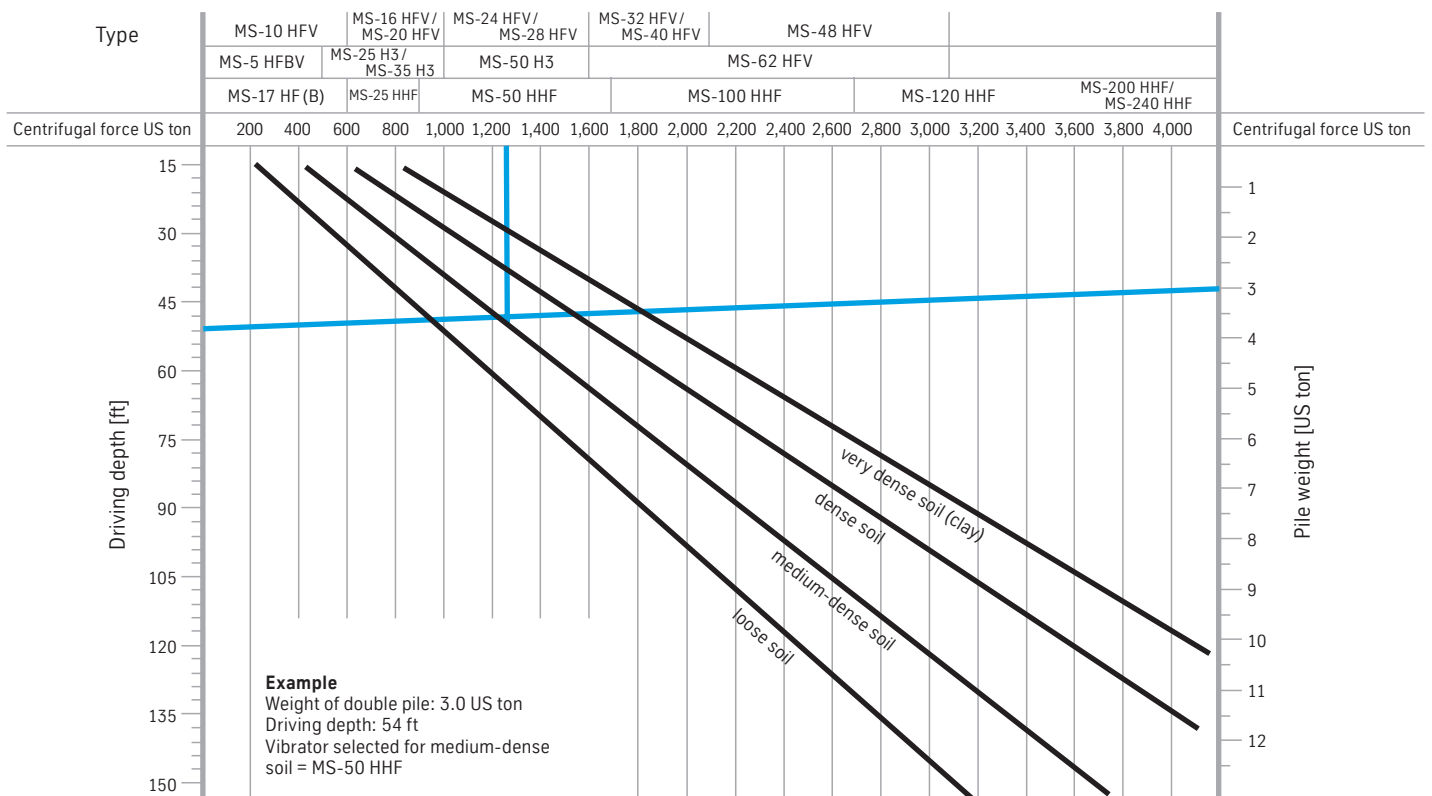
The chart below helps users to select the right vibrator or determine the centrifugal force required depending on soil conditions, pile weight, and driving depth.

The use of additional equipment, e.g., water-jetting or pre-drilling units, can help to achieve much better driving performance with the same size of unit or centrifugal force of the vibrator.

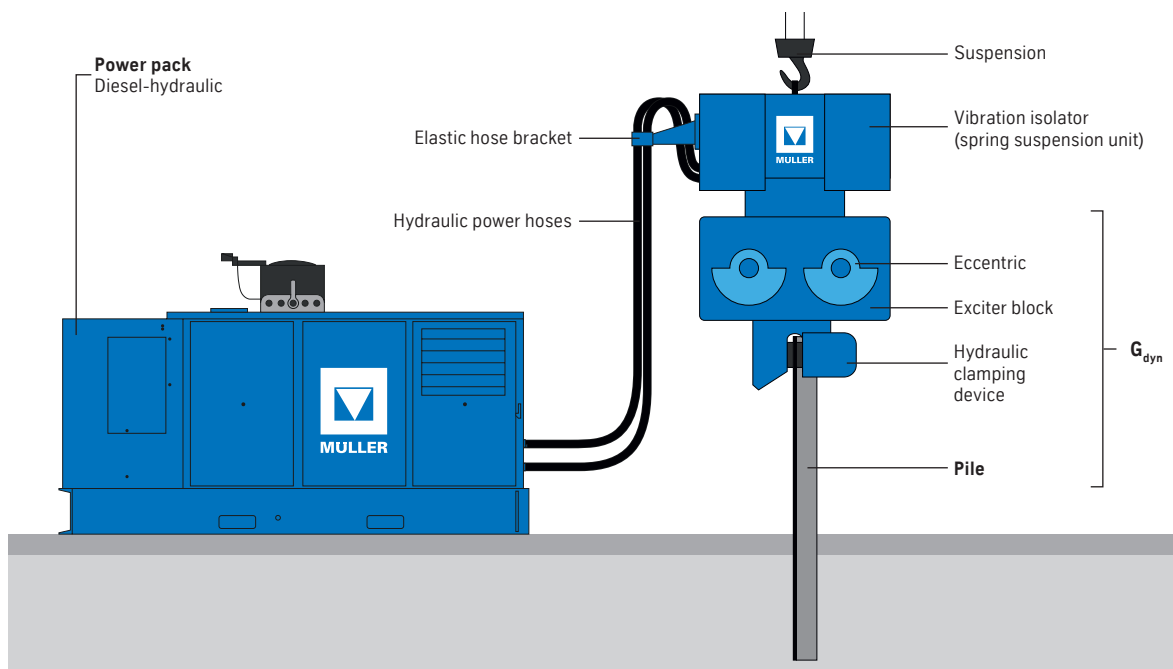
The power pack must be powerful enough to generate the moment needed to maintain the centrifugal force of the vibrator, even in difficult ground. The drive output should be 2.5–3.5 HP per 1 US ton of centrifugal force.

Our advisers use numerical simulation software for selecting equipment to suit the soil parameters and pile section data exactly.

Equipment selection chart



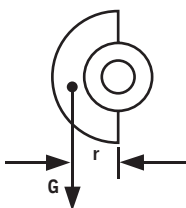
Operating principle of MÜLLER vibrators (typical design)



Key vibration technology data

Eccentric moment M [in-lbs]

$$M = G \cdot r$$



The eccentric moment is the measure of unbalance. As a determining factor for amplitude it is a key parameter for driving operations.

Speed (Frequency) n [rpm]

The speed dictates the vibration frequency of the system. The vibrations are transferred via the pile to the surrounding soil, significantly reducing the surface friction between pile and soil. High frequencies counter the unwanted spread of vibrations in the soil.

Centrifugal force

$$F = M \cdot \omega^2$$

$$F = [\text{US ton}] \quad F = M \left(\pi \cdot \frac{n}{30} \right)^2$$

The centrifugal force must be high enough to overcome surface friction between pile and soil. Centrifugal force plays a major part in reducing surface friction and provides impact force to overcome tip resistance.

Total amplitude S [in]

$$S = 2s = \frac{2 \cdot M_{\text{stat}} \text{ [in-lbs]}}{\sum G_{\text{dyn}} \text{ [lbs]}}$$

Together with centrifugal force, amplitude is a measure of driving performance. A large "stroke" and high "impact force" ensure good driving progress. When driving and extracting in cohesive soils, the elastic connection between pile and soil can only be broken if the amplitude is high enough.

Acceleration a [in/sec²]

$$a = s \cdot \omega^2 \quad \text{with} \quad \omega = \pi \cdot \frac{n}{30}$$

Transmission of the pile acceleration to the surrounding soil causes the displacement of the grain structure and reduces grain friction and soil resistance. Acceleration is expressed as the ratio of acceleration of the vibrator to gravity:

$$\eta = \frac{a}{g} \quad \text{This ratio corresponds to:} \quad \eta = \frac{F \cdot 10^{-1}}{G_{\text{dyn}}}$$

The value can lie between 10 and 30.

MÜLLER H, HHF, or HFV series vibrators.

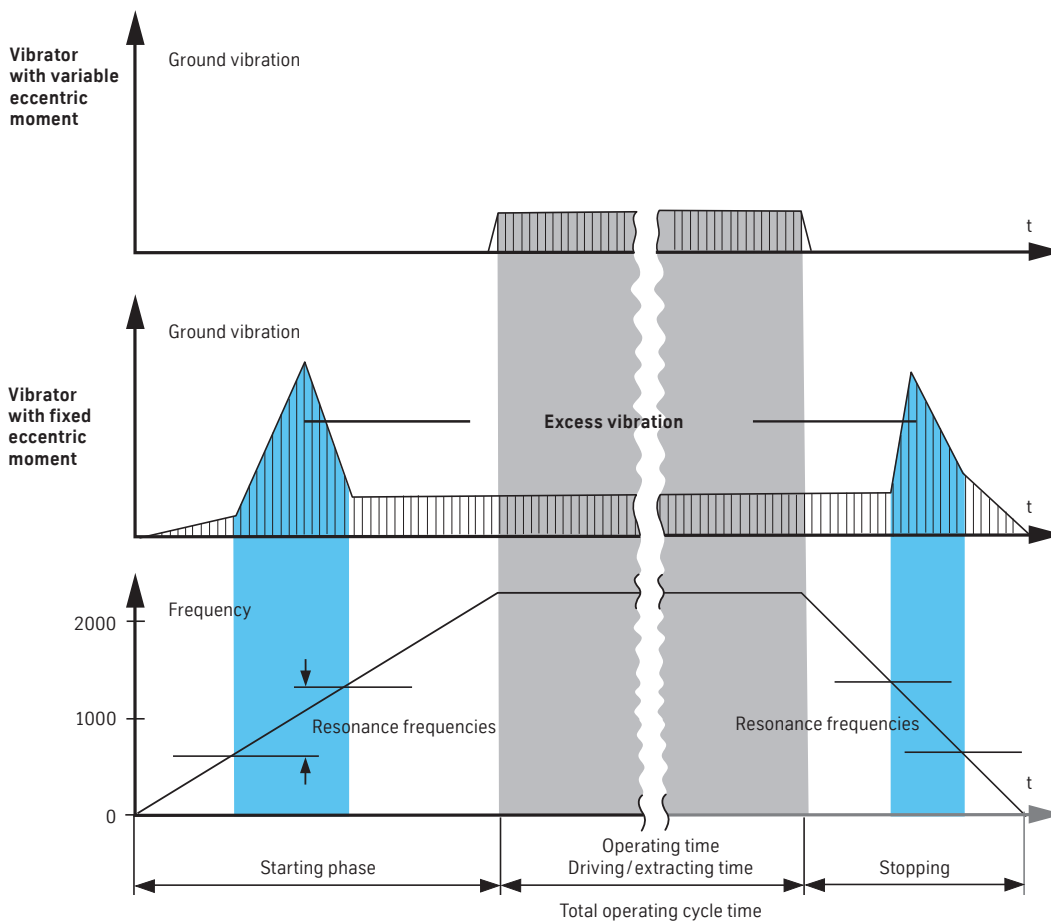
The right choice for every application.

The H series is the “workhorse” of vibration technology. Their robust yet simple design enables these units to be used wherever there are no restrictions on the propagation of vibrations in the soil.

With an eccentric moment that can be adapted to the soil conditions, the HHF series is ideal for applications with changing geological conditions. The largest units of this series are suitable for driving even the heaviest sheet piles into dense, compact soils.

The eccentrics can be adjusted during driving, and so the HFV series is ideal wherever maximum restrictions on the propagation of vibrations in the soil apply, e. g., working directly adjacent to existing buildings or in urban areas. These units avoid resonant vibrations during starting and stopping and also allow the amplitude to be optimized during driving to suit the ground conditions.

Principle of resonance-free starting and stopping



MÜLLER vibrators H series.

With fixed eccentric moment.

MÜLLER vibrators with constant amplitude – straightforward to use and robust. That is the foundation for good results in moderately difficult driving conditions. These vibrators are fitted with eccentrics that generate a fixed eccentric moment. With force-feed lubrication and oil cooling, this series is equipped for applications in extreme climatic conditions.

Applications

- Soils with light to moderately difficult driving conditions
- Driving and extracting tubular piles
- Also in extreme climatic conditions

Advantages

- Extremely robust machine design
- Easy handling and easy adjustment of clamping devices

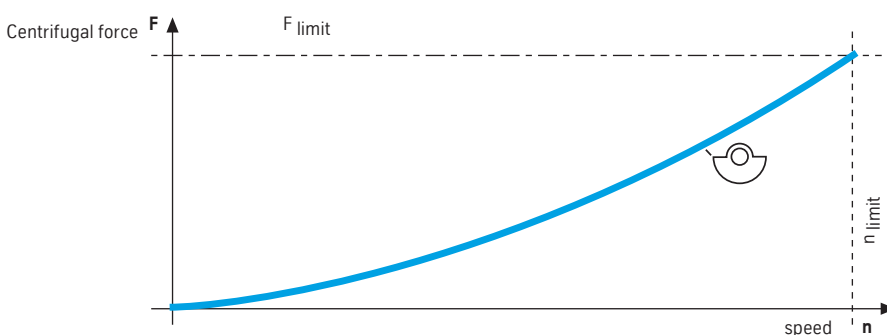


Type			MS-25 H3	MS-35 H3	MS-50 H3	MS-65 H3
Centrifugal force	F (max.)	US ton	87.0	93.7	160.7	187.7
Eccentric moment	M stat	in-lbs	2,170	2,821	4,340	5,642
Speed	n (max.)	rpm	1,680	1,530	1,615	1,530
Frequency	f (max.)	Hz	28.0	25.5	26.9	25.5
Pulling force	F pull (max.)	US ton	45.0	45.0	56.2	56.2
Weight (dynamic)	without clamping device	lbs	5,622	5,864	8,422	9,259
Weight (total)	without clamping device	lbs	7,937	7,937	17,747	18,078
Amplitude	without clamping device/pile	in	0.8	1.0	1.0	1.2
Displacement	Q Motor (max.)	gpm	112.3	132.1	190.0	179.7
Pressure	p (max.)	psi	5,076	5,076	5,076	5,076
Power consumption	p (max.)	US HP	332.3	391.3	561.5	532.0
Dimensions	Length L	in	88.583	96.260	110.236	119.488
	Width B	in	30.590	34.055	26.693	26.693
	Height H	in	68.701	69.291	84.252	82.874
	Throat T	in	15.827	15.827	13.937	15.827
Power pack	Type	MS-A	290	290	420	420/515*
Single clamping device	Type	MS-U	80/100	80/100	150**	200
	alternative Type	MS-U	150	150	–	250
Double clamping device	Type	MS-U	2x54	2x54	2x80/100	2x80/100
	alternative Type	MS-U	2x90	2x90	2x90	–

* Performance-enhanced combination

** Recommendation: clamping force should be 1.2 times higher than centrifugal force of the vibrator

Fixed eccentric moment



MÜLLER vibrators HHF series.

Two in one.

The vibrator can be adapted quickly to different soil conditions by a simple system of adding or removing weights, allowing the eccentric moment to be varied. For example, if high frequency is required for work in loose sand, the additional weights can be removed simply on site to achieve high frequencies with the same centrifugal force.

Applications

- Soils with moderate to heavy driving conditions
- Suitable for heavy piles

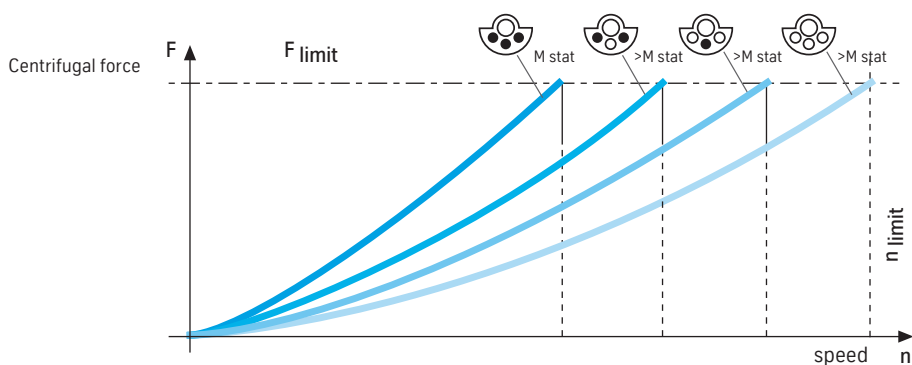
Advantages

- Adding or removing weights
- Quick changeover
- Quickly adapted to different soil conditions

Type			MS-25 HHF	MS-50 HHF	MS-100 HHF	MS-120 HHF	MS-200 HHF	MS-240 HHF
Centrifugal force	F (max.)	US ton	84.3	168.6	281.0	337.5	449.6	580.0
Eccentric moment	M stat (max.)	in-lbs	2,170	4,340	8,680	10,068	16,491	20,831
Steps (see illustration)		kgm	12/15/20/25	24/30/40/50	48/60/80/100	80/94/110/116	(98)/110/150/190	151/193/218/240
Speed steps	n (max.)	rpm	2,280/2,113/	2,362/2,113/	2,160/1,920/	1,850/1,700/	(1,800)/1,800/	1,770/1,560/
		rpm	1,830/1,637	1,830/1,637	1,670/1,500	1,570/1,536	1,560/1,371	1,470/1,400
Frequency steps	f (max.)	Hz	39.3/35.2/	39.3/35.2/	36/32/	30.9/28.3/	30/26/	29.5/26/
Frequency steps	f (max.)	Hz	30.5/27.3	30.5/27.3	27.8/25	26.2/25.6	22.9	24.5/23.4
Pulling force	F pull (max.)	US ton	31.5	56.2	67.4	134.9	134.9	134.9
Weight (dynamic)	without clamping device	lbs	6,393	9,921	16,975	19,621	25,904	26,477
Weight (total)	without clamping device	lbs	8,157	13,448	24,030	34,171	40,785	41,887
Amplitude (steps)	without clamping device/pile	in	0.677/0.543/	0.874/0.701/	1.024/0.819/	1.028/0.972/	1.276/1.004/	1.575/1.429/
		in	0.406/0.327	0.524/0.421	0.614/0.492	0.831/0.709	0.736/0.657	1.264/0.988
Displacement	Q Motor (max.)	gpm	131	161/255	276/340	304/405	379/444	468
Pressure	p (max.)	psi	5,076	5,076	5,076	5,076	5,076	5,076
Power consumption	P (max.)	US HP	389	477/753	817/1,005	899/1,199	1,122/1,313	1,383
Dimensions	Length L	in	70.866	88.976	94.882	90.551	90.551	90.551
	Width B	in	32.008	34.961	33.307	47.244	56.299	59.449
	Height H	in	74.212	97.047	127.362	162.795	164.173	164.960
	Throat T	in	14.173	13.780	19.685	32.756	32.756	32.756
Power pack	Type	MS-A	290	420	700/840*	840/1030*	840/1030*	1030
Single clamping device	Type	MS-U	90	180	360	360	–	–
	alternative Type	MS-U	80/100 A	200	250**	–	–	–
Double/quadruple clamping device	Type	MS-U	2x54	2x80/100	2x150	2x180	2x250	2x250
	alternative Type	MS-U	–	–	2x180	2x150**	–	4x180
	alternative	MS-U	–	–	–	–	–	4x150

* Combination for increased performance ** Recommendation: clamping force should be 1.2 times higher than centrifugal force of the vibrator

Stepwise variable moment



MÜLLER vibrators HFV series.

Variable and resonance-free.

The vibrators of this series ensure maximum performance for minimum ground vibration and are therefore ideal for applications in inner-city civil engineering works or in areas sensitive to vibration – guaranteed by the resonance-free starting and stopping. In addition, the amplitude can be infinitely varied during operations. The natural frequency of the soil can therefore be taken into account – driving proceeds effectively and at the same time with little vibration.

Applications

- Inner-city civil engineering works
- Areas sensitive to vibration
- Chiefly sandy soils

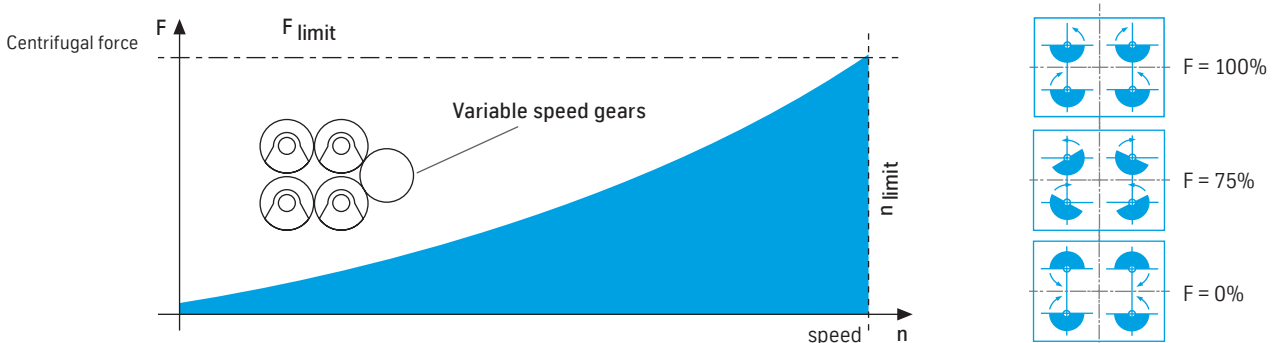
Advantages

- Minimal ground vibrations
- Optimum adaptation to soil conditions
- Technology that's easy-going on equipment and environment

Type			MS-10 HFV	MS-16 HFV	MS-20 HFV	MS-24 HFV	MS-28 HFV	MS-32 HFV	MS-40 HFV	MS-48 HFV	MS-62 HFV
Centrifugal force	F (max.)	US ton	68.6	110.8	138.3	166.4	165.6	222.6	225.5	332.7	337.0
Eccentric moment	M stat (variable)	in-lbs	0–868	0–1,389	0–1,693	0–2,083	0–2,430	0–2,778	0–3,402	0–4,166	0–5,381
Speed	n (max.)	rpm	2,358	2,370	2,400	2,350	2,190	2,375	2,160	2,350	2,100
Frequency	f (max.)	Hz	39.3	39.5	40.0	39.2	36.5	39.6	36.0	39.0	35.0
Pulling force	F pull (max.)	US ton	20.2	33.7	33.7	45.0	56.2	67.4	67.4	67.4	89.9
Weight (dynamic)	without clamping device	lbs	3,748	5,655	5,578	6,393	6,878	10,692	10,736	14,374	15,002
Weight (total)	without clamping device	lbs	5,071	7,782	7,937	11,133	11,728	15,983	16,049	21,385	24,614
Amplitude	without clamping device/pile	in	0.46	0.49	0.61	0.65	0.71	0.52	0.63	0.58	0.72
Power consumption	P (max.)	HP (US)	197/272	398/547	553	541/738	574/689	764/918	844/1,013	914/1,103	1,313/985
Displacement	Q Motor (max.)	gpm	67/92	134/185	187	183/250	194/232	276/310	285/342	309/372	444/333
Pressure	p (max.)	psi	5,076	5,076	5,076	5,076	5,076	5,076	5,076	5,076	5,076
Dimensions	Length L	in	64.37	81.89	81.89	75.59	75.59	93.35	93.35	93.35	93.35
	Width B	in	28.82	30.79	30.79	35.16	35.16	31.50	34.65	44.21	46.46
	Height H	in	60.24	81.10	81.10	88.19	88.19	96.65	96.65	99.41	99.41
	Throat T	in	12.99	13.78	13.78	17.76	17.76	13.58	13.58	33.86	33.86
Power pack	Type	MS-A	190/290*	290/420*	420	420/515	420/515*	700	700/840*	700/840*	1030
Single clamping device	Type	MS-U	72	150	150	180	180	250	250	360	360
	alternative	MS-U	80/100	–	–	150**	150	200	–	–	–
Double clamping device	Type	MS-U	2x54	2x90	2x90	2x90	2x90	2x150	2x180	2x180	2x180
	alternative	MS-U	–	–	2x80/100	2x80/100	2x80/100	–	–	–	–

* Combination for increased performance ** Recommendation: clamping force should be 1.2 times higher than centrifugal force of the vibrator

Variable eccentric moment



MÜLLER excavator-mounted vibrator side gripper HFB SG series.

MÜLLER side grippers are capable of picking up, positioning, and driving a pile in a single operation. This is a key advantage on space or height-restricted job sites, as conventional excavator-mounted vibrators clamp the pile on the top.



MÜLLER side grippers can be mounted on almost any standard excavator – without interfering with the excavator hydraulics. They are powered by the on-board hydraulics and controlled by the excavator's control levers.

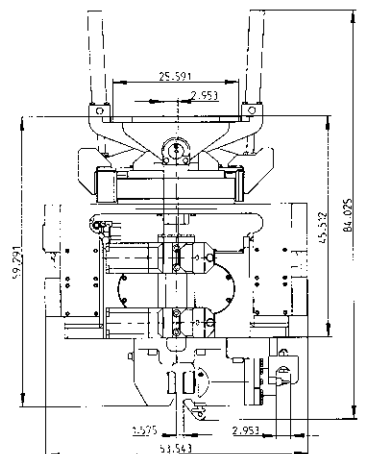
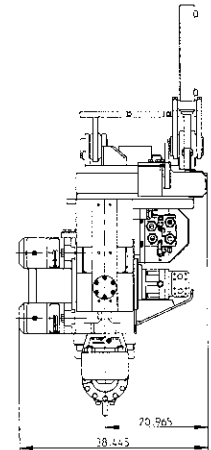
Advantages

- The MÜLLER excavator-mounted vibrator with tilt-rotating device and side clamp
- is ideal for applications with restricted side conditions
- It offers outstanding maneuverability, supreme reliability, and very easy handling
- The side clamp is mounted sturdily – with very few moving parts and high clamping force
- It can be mounted on almost any standard excavator without interfering with the hydraulics – thanks to an intelligent control block
- Vertical alignment is via an inclination measuring and display device
- Made in Germany

Technical Data

			MS-4 HFB SG	MS-6 HFB SG
Centrifugal force	F (max.)	US-ton	42	52
Eccentric moment	M stat (variable)	in-lbs	365	564
Speed	n (max.)	rpm	2,850	2,550
Frequency	f (max.)	Hz	47.5	42.5
Pulling force	F pull (max.)	US ton	13.5	13.5
Push down	F push (max.)	US ton	13.5	13.5
Weight (dynamic)	without clamping device	lbs	4,012	4,034
Weight (total)	without clamping device	lbs	2,138	2,161
Amplitude	without clamping device/pile	in	0.34	0.48
Power consumption	p (max.)	US HP	134	159
Displacement	Q Motor (max.)	gpm	45.2	53.9
Dimensions	Length L	in	53.543	53.543
	Width B	in	20.669	20.669
	Height (excl. clamping device) H	in	45.512	45.512
Standard clamping device		MS-U	60	72
Special clamping device		MS-U	60 K	72 K
		MS-U	80/100	80/100

Main dimensions



Positioning, aligning, and driving



Shifting and driving to final depth



Handling of H beam



Inclination measuring and display device

MÜLLER excavator-mounted vibrators.

Compact all-rounders.

The compact, lightweight MÜLLER excavator-mounted vibrators can be attached to all common excavators. The power comes from the on-board hydraulics and the units are controlled by the excavator's control levers. Various models (HFB, HFBV, HFBS) and useful accessories are available to suit the most diverse applications.



Applications

- General driving, extracting and compacting work (MS-2 to -9 HFB)
- Suitable for sheet piling and tubular piles with a modified clamp arrangement (MS-4 -6-7 and 9 HFB)
- Installation of plastic and timber piles, lightweight sections, reinforcing cages (MS-1 HFB)
- For vibration-sensitive projects or inner-city areas (MS-5 HFBV, MS-7 HFBV, MS-8 HFBV, MS-10 HFBV)
- Jobs in heavy soils (MS-9 HFB, MS-17 HFB)
- Pile sections can be picked up and set down directly with the clamp (MS-4 to -7 HFBS)

Advantages

- Small and compact
- All vibrators are fitted with a safety circuit
- Quiet and universal in application
- Extremely low height allows driving of long piles
- High push/pull forces increase driving performance
- All clamps can be rotated through 90° to allow face working
- Easy to attach
- Option: double clamping devices can be fitted for driving tubular piles
- Option: cooling system
- Option: monitoring of operating data
- Option: modified for operation with power pack



Technical data at a glance.

MS-HFB / MS-HFBS with fixed eccentric moment.

Type			MS-1 HFB	MS-2 HFB	MS-3 HFB	MS-4 HFB	MS-6 HFB
Centrifugal force	F (max.)	US ton	10.1	27.5	33.3	42.0	52.2
Eccentric moment	M stat (max.)	in-lbs	61	191	260	365	564
Frequency	f (max.)	Hz	56	53	50	48	43
Speed	n (max.)	rpm	3,360	3,185	3,000	2,850	2,550
Pulling force	F pull (max.)	US ton	3.8	6.7	6.7	13.5	13.5
Push down	F push (max.)	US ton	3.8	4.5	4.5	9.0	9.0
Power consumption	p (max.)	US HP	80	82	94	134	159
Dynamic weight (incl. clamping device)		lbs	772	1,797	1,830	2,712	2,734
Total weight (incl. clamping device)		lbs	507	1,257	1,290	2,073	2,095
Amplitude		in	0.24	0.30	0.41	0.35	0.54
Displacement	Q Motor (max.)	gpm	26.9	27.7	31.7	45.2	53.9
Length	L	in	28.425	45.394	45.394	48.779	48.779
Width	B	in	18.583	24.528	24.528	29.213	29.213
Height (incl. clamping device)	H	in	29.961	40.315	40.315	49.173	49.173
Width at throat	T	in	9.055	10.236	10.236	13.386	13.386
Standard clamping device	Type	MS-U	12	40	40	60	60
Recommended power pack	Type	MS-A	-	-	-	190	190



Type			MS-7 HFB	MS-9 HFB	MS-17 HFB	MS-4 HFBS	MS-6 HFBS	MS-7 HFBS
Centrifugal force	F (max.)	US ton	67.9	68.1	67.9	42	52	68
Eccentric moment	M stat (max.)	in-lbs	608	738	1476	365	564	608
Frequency	f (max.)	Hz	47	43	30	48	43	47
Speed	n (max.)	rpm	2,800	2,550	1,800	2,850	2,550	2,800
Pulling force	F pull (max.)	US ton	16.9	16.9	15.7	13.5	13.5	16.9
Push down	F push (max.)	US ton	9.0	9.0	19.1	9.0	9.0	9.0
Power consumption	p (max.)	US HP	176.8	180.8	214.8	134.0	159.0	174.0
Dynamic weight (incl. clamping device)		lbs	2,866	3,042	4,868	2,998	3,020	3,042
Total weight (incl. clamping device)		lbs	2,094	2,183	3,203	2,447	2,469	2,491
Amplitude		in	0.58	0.68	0.78	0.30	0.46	0.49
Displacement	Q Motor (max.)	gpm	59.2	60.5	71.3	44.5	53.0	58.2
Length	L	in	48.779	48.779	67.480	55.512	55.512	55.512
Width	B	in	29.213	30.000	36.102	27.441	27.441	27.441
Height (incl. clamping device)	H	in	49.173	49.173	57.520	49.213	49.213	49.213
Width at throat	T	in	13.386	13.386	13.386	-	-	-
Standard clamping device	Type	MS-U	72	72	72	60	60	72
Recommended power pack	Type	MS-A	190	190	190	190	190	190

The maximum operating pressure for all excavator-mounted vibrators is 350 bar.

Technical data at a glance.

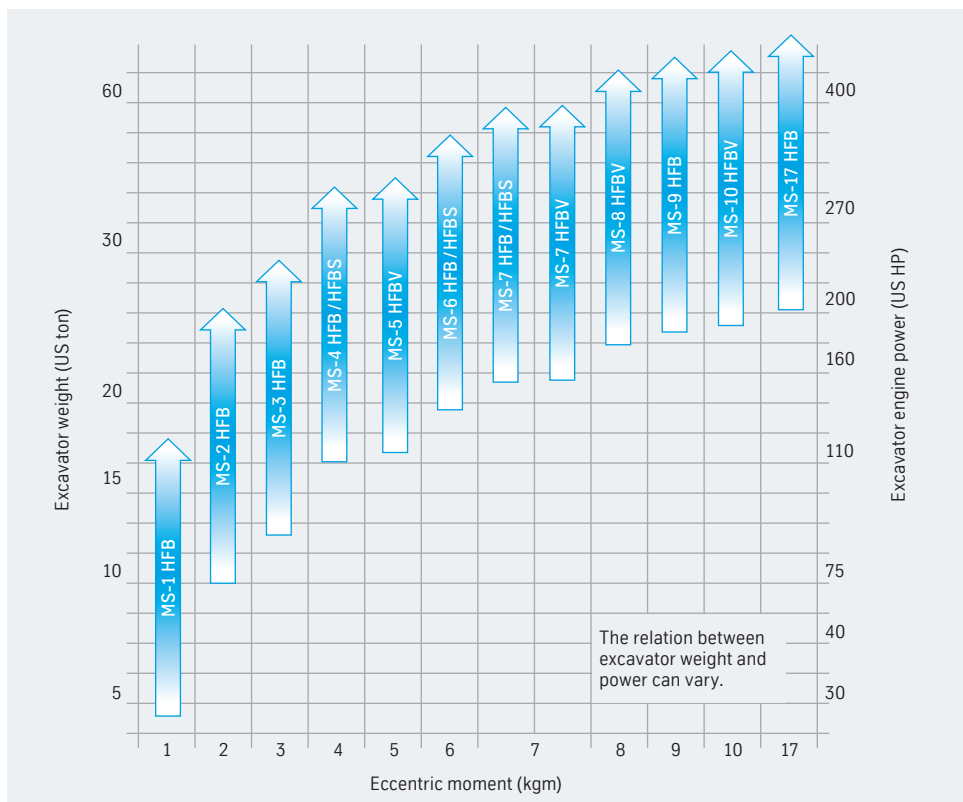
MS-HFBV with variable eccentric moment.

Type			MS-5 HFBV*	MS-7 HFBV*	MS-8 HFBV	MS-10 HFBV
Centrifugal force	F (max.)	US ton	45.0	53.7	65.8	66.1
Eccentric moment	M stat (max.)	in-lbs	0-434	0-582	0-694	0-581
Frequency	f (max.)	Hz	45	40	43	39
Speed	n (max.)	rpm	2,700	2,400	2,580	2,340
Pulling force	F pull (max.)	US ton	13.5	13.5	16.9	16.9
Push down	F push (max.)	US ton	9.0	9.0	16.9	16.9
Power consumption	P (max.)	US HP	127/169	150/169	221/161	224/198
Dynamic weight (incl. clamping device)		lbs	3,483	3,527	4,001	4,112
Total weight (incl. clamping device)		lbs	2,491	2,535	2,855	2,954
Amplitude (incl. clamping device)		in	0.35	0.44	0.49	0.57
Displacement five connecting hoses	Q Motor (max.)	gpm	42.8/57.1	53.9/60.8	74.8/54.4	77.4/67.9
Displacement three connecting hoses	Q Motor (max.)	gpm	47.6/63.4	58.1/66.1		
Length	L	in	53.150	53.150	61.181	61.181
Width	B	in	27.835	27.835	29.961	29.961
Height (incl. clamping device)	H	in	56.024	55.866	57.362	57.362
Width at throat	T	mm	15.354	15.354	16.339	16.339
Standard clamping device	Type	MS-U	60	60	72	72
Recommended power pack	Type	MS-A	190	190	190	190

The maximum operating pressure for all excavator-mounted vibrators is 350 bar.

* Option: with three or five connecting hoses

Equipment selection chart



MÜLLER power packs.

Power and intelligence.



The low-noise, fuel-efficient power units comply with the latest exhaust emission regulations. They can be operated via cable or radio remote control. Optionally, operating parameters and machine data can be called up remotely via data modem. They are characterized by a robust design, good reliability and a comprehensive range of accessories.

All MÜLLER Power Packs correspond to the US exhaust emission standard.

Type			MS-A 190-0 (V)*	MS-A 290 (V)*	MS-A 420 (V)*	MS-A 515 (V)*	MS-A 700 (V)*	MS-A 840 (V)*	MS-A 1030 (V)*
Diesel motor			CAT	CAT	CAT	Volvo-Penta	CAT	CAT	Volvo-Penta
Type		ATAAC	C 71	C 93	C 15	TAD 1672	2 x C 13	2x C 15	2xTAD 1672 VE
Exhaust certification		EU/EPA	IV/Tier 4f	IV/Tier 4f	IV/Tier 4f	IV/Tier 4f	IV/Tier 4f	IV/Tier 4f	IV/Tier 4f
Power	P (max.)	US HP	249	389	580	690	949	1,160	1,381
Speed	n (max.)	rpm	2,200	2,100	2,000	1,850	2,100	2,100	1,850
Hydraulics									
Feed rate	Q (max.)	gpm	73.976	138.705	195.508	277.410	311.756	391.016	554.820
Operating pressure	p (max.)	psi	5,511	5,511	5,511	5,511	5,511	5,511	5,511
Fuel tank capacity		gals	105.68	145.31	237.78	277.41	369.88	581.24	581.24
Hydraulic tank capacity		gals	52.8	66.1	74.0	116.2	132.1	158.5	158.5
Weight without fuel		lbs	9,259	12,346	13,669	18,739	27,558	29,762	31,305
Dimensions	Length L	in	122.05	155.51	167.32	187.01	188.98	208.66	208.66
	Width B	in	55.118	58.268	66.929	78.740	86.614	94.488	94.488
	Height H	in	86.614	90.551	94.488	94.488	90.551	102.362	102.362

* optionally with variable amplitude

MÜLLER leader-mounted vibrators.

For tight spaces.



MÜLLER leader-mounted vibrators are the specialists for tight corners. They are mounted on leaders and offer contractors an adjustable moment plus resonance-free starting and stopping.

Applications

- Driving and extracting sheet piles, tubular piles and H sections
- Foundation methods such as compacted gravel or sand columns
- Driving and extracting single sheet piles with small dimensions

Advantages

- Compact design
- Driving and extracting on cramped sites
- Resonance-free starting and stopping
- Minimum vibrations and emissions

Type			MS-16 HFMV	MS-20 HFMV	MS-30 HFMV
Centrifugal force	F (max.)	US ton	110.8	130.4	172.5
Eccentric moment	M stat (max.)	in-lbs	0-1,389	0-1,736	0-2,604
Speed	n (max.)	rpm	2,376	2,340	2,160
Frequency	f (max.)	Hz	39.5	38,4	36
Pulling force	F pull (max.)	US ton	20.2	20.2	33.7
Total weight	incl. clamping device	lbs	8,774	9,061	12,544
Dimensions	Height (excl. clamping device) H	in	67.323	67.323	84.488
	Throat T	in	17.913	17.913	21.654
Standard clamping device	Type	MS-U	150 A	150 A	180 A

The operating pressure for all leader-mounted vibrators is max. 350 bar.

MÜLLER drill drives.

Rounding off the range.



These robust, low-noise drilling units are quickly and easily attached to the stick of an excavator. Attachment to a leader or fitting in the clamp of a vibrator are available as options.

Applications

- Pre-drilling to loosen and relieve the ground
- Heavy soils

Advantages

- Various mounting options
- Fast, cost-effective drilling
- Powerful, robust, long life

Type			MS-RHA 12 3*	MS-RHA 16 3*	MS-RHA 24 3*	MS-RHA 34 3*	MS-RHA 46 3*
Torque	(max.)	lbf in	106,257	141,676	212,514	301,062	407,319
Speed	(max.)	rpm	125	115	110	100	70
Oil pressure	(max.)	psi	5,076	5,076	5,076	5,076	5,076
Displacement	(max.)	gpm	68.7	92.5	121.5	158.5	158.5
Diameter	smallest drilling diameter	in	7.87	7.87	15.75	15.75	15.75
Diameter	largest drilling diameter	in	27.56	35.43	47.24	55.12	62.99
Weight	without auger/without stand approx.	lbs	661	794	970	1,323	1,675
Drill depth	with smallest drilling diameter (max.)	ft	64.4	80.5	45.1	51.5	64.4
Drill depth	with largest drilling diameter (max.)	ft	12.9	12.9	6.4	6.4	6.4
Hexagon connection		mm	70/70	70/80	80/80	100/100	120/120

* Connection to excavator stick = 3

Options available on request: mounted on leader, fitted in vibrator clamp

MÜLLER clamping devices.

A safe connection.

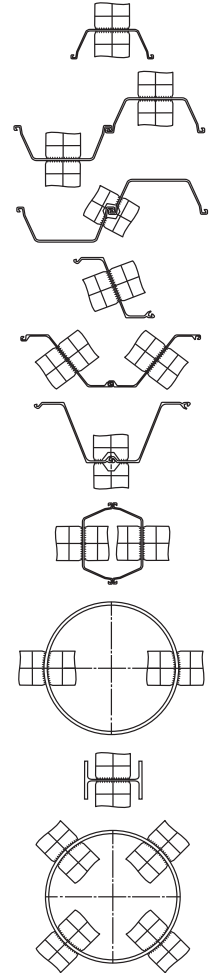
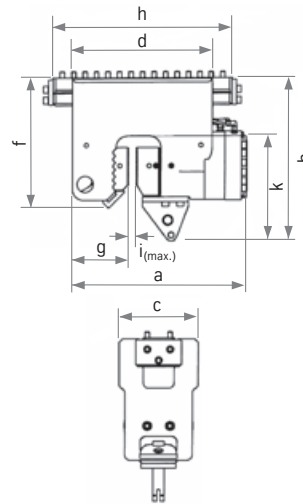


MÜLLER clamping devices

Clamping devices connect the pile section, e. g., H sections or tubular piles, to the vibrator and transfer the vibrations. All units can be rotated through 90° for face working. Adapter plates are available to cope with different clamping arrangements. Clamps to fit over the interlocks of double piles and radial clamps for driving tubular piles are also available. It is strictly recommended that the clamping force should be at least 1.2 times higher than the centrifugal force of the vibrator.

Applications

- As single and double clamps for U/Z sections, H sections, and tubular piles
- As special clamping devices for specific tasks, e. g., timber piles, concrete piles, and small-diameter tubular piles



Arrangement of clamps

Clamping devices

Type	Clamping force US ton	Clamping pressure psi	Dimensions in in							i. max.	IPB min	Weight lbs
			a	c	d	f	g	h				
MS-U 12*	14	3,771	9	8	8	9	4	–	1	120	110	
MS-U 40*	42	4,351	22	10	16	11	7	–	2	120	320	
MS-U 54**	61	5,076	26	11	20	27	7	29	1	180	970	
MS-U 60*	67	4,351	25	13	19	14	9	–	2	140	573	
MS-U 72*	79	5,076	30	13	23	21	11	32	1	180	1,356	
MS-U 80/100 A*	81	5,076	25	13	19	14	9	–	2	140	573	
MS-U 80/100 G**	90/112	4,061/5,076	31	13	20	16	9	–	2	280	882	
MS-U 90**	101	5,076	30	13	23	21	11	32	1	180	1,367	
MS-U 150 GP**	169	5,076	35	13	25	22	12	31	2	320***	2,028	
MS-U 150 AP*	169	5,076	36	14	26	23	13	–	2	320***	2,072	
MS-U 180 GP**	202	5,076	36	15	29	25	13	35	2	320***	2,756	
MS-U 180 AP*	202	5,076	35	15	29	25	12	–	2	320***	2,491	
MS-U 200 A*	2000	350	1011	380	880	800	410	–	48	450	1600	
MS-U 250 G**	281	5,076	46	16	34	33	14	45	2	450	5,401	
MS-U 250 A*	281	5,076	46	16	34	33	15	–	2	450	4,299	
MS-U 360 A*	405	5,076	49	18	46	37	20	–	3	500	6,900	

* for direct bolting ** shiftable on clamping bar *** IPB 300 possible with special equipment

MÜLLER data acquisition.

Mobile measurement, indication and recording of vibrations.

The data acquisition system enables simple and reliable monitoring of the driving process to ensure that the design requirements are adhered to. The system records operating parameters such as operating frequency and vibrator oil pressure. In addition, ground vibrations can be measured via a three-axis geophone according to DIN 4150. When using water-jetting equipment to assist driving, the water pressure and flow rate can also be recorded.

MS-DATA

The data acquisition equipment is integrated directly into the drive's control unit. The data can then be sent via cable to a computer on-site or via modem and data transmission to an Internet server for safe storage. The data can be called up from any computer with Internet access after entering the necessary password. Bespoke record forms to suit customers' requirements are also possible. The power pack control automatically regulates the operating parameters of the vibrator so that given vibration limits for ground or buildings are not exceeded.

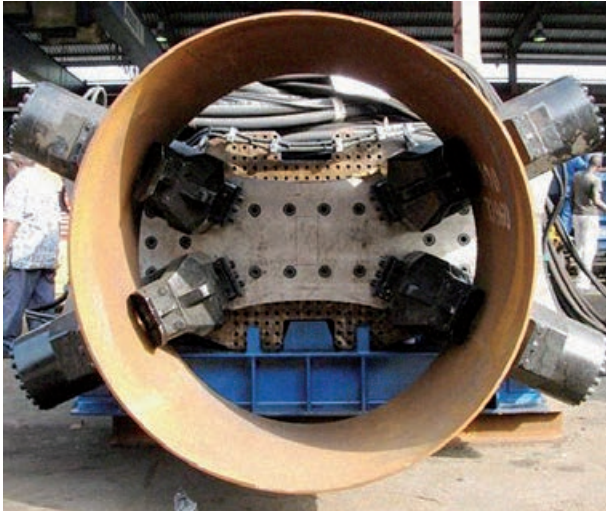
Advantages

- Optimum system compatibility – everything from one supplier
- Vibration monitoring to DIN 4150
- Constant monitoring of operating parameters
- Recording of multiple parameters
- Safe data storage to protect against loss
- Simple records



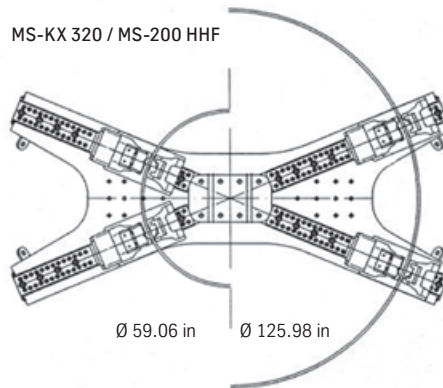
MÜLLER accessories.

The right extras for every application.



Bracket

So-called X-brackets are available in various sizes for driving large-diameter, heavy, tubular piles.



MÜLLER safety shackle

The MÜLLER safety shackle, available in various sizes, is ideal for picking up piles quickly and safely. At the same time, it guarantees easy, safe pitching of piles.

Advantages

- Twin fastening prevents opening under load
- Easy to use
- Low weight

Type	Tensile load US ton	Weight lbs
MS-SSZ-3 B	3.0	33,1
MS-SSZ-4 B	4.0	52,9
MS-SSZ-5 B	5.0	57,3



MÜLLER universal connecting fork for excavator-mounted units

This accessory enables MÜLLER excavator-mounted vibrators and drilling units to be attached to the majority of excavators. It is fitted with three different connecting pins. The benefits are the fast changeover from drilling unit to vibrator and the stable construction. Other connecting forks are available on request.

MÜLLER winter package for power packs

For use in temperatures down to -25°C .

The winter package contains:

- Preheaters for hydraulic oil and diesel engine cooling water, with external power supply (220–240 V)
- Option: set of covers for closing off the unit's air intakes and air outlets
- A reduced airflow through the unit to help the unit reach its operating temperature faster
- Operation with some air intakes and air outlets closed depending on the ambient temperature
- Better economy thanks to faster deployment and fuel-savings
- Furthermore, the components benefit from preheating, which improves their operational readiness and prolongs their service life



MÜLLER fine filters

The bypass oil filter is a filter system that supplements the hydraulic filter already fitted. The bypass oil filter is used for the fine filtering of the hydraulic oil. The lower flow rate via the filter means that a much finer filter can be selected than is the case with standard filter elements. Therefore, much finer particles can be removed from the oil than is the case with full-flow oil filters. Bypass filters are available for all MÜLLER power packs.

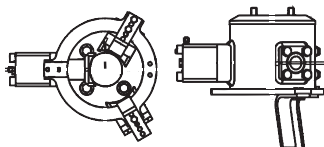
Advantages

- Prolongs the life of the hydraulic oil and the system components
- Avoids acids in the oil through absorption of water
- Fewer malfunctions thanks to the improved cleanliness of the hydraulic oil
- Reduced repair costs and downtimes
- Reduced load on primary filters and therefore lower maintenance costs

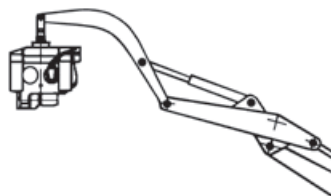


Other accessories

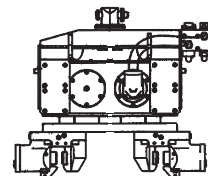
Timber pile clamping device



Stick extension ("goose neck") to increase usable piling length

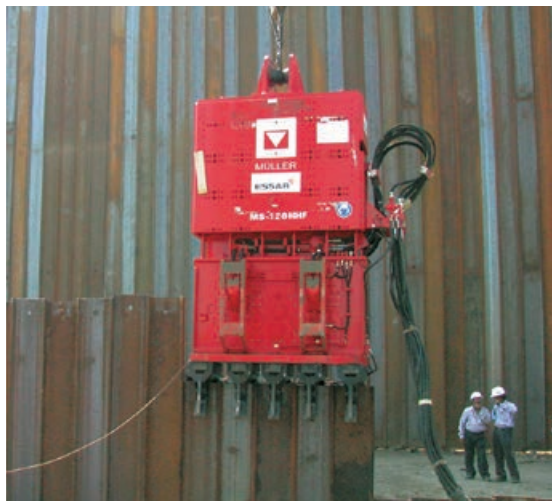


Adapter plate / double clamping devices for driving tubular piles



MÜLLER special equipment.

Special expertise.



Expert consulting services often make a decisive contribution to success when special challenges have to be met. Our engineers, specialized in machine design, control technology and electronics, and geotechnical and foundation engineering, are available to help you.

MÜLLER five-fold clamping device

The adapter plate enables five clamping elements to be attached to five straight-web sections. These are arranged on a radius so that the sections can be clamped and installed simultaneously. This is an efficient way to counter buckling of the section.



DYSTAFIT®

DYSTAFIT® can be used to optimize soil improvement and rehabilitation measures. It does this by simulating loading cycles, which enables valid statements to be made about the stability of a soil that is sensitive to settlement, subsidence, or shifting. In addition, this method is useful for assessing the effects of higher speeds on railway lines.



MÜLLER acoustic hood

The newly developed acoustic hood reduces noise emissions but does not hamper servicing nor the escape of unwanted heat.

Advantages

- Lower noise levels
- Special access openings permit maintenance and servicing without removing the hood
- Additional vertical weight on spring suspension unit
- Easy to store and transport

MÜLLER Vibrators HHF-series

Foundation Technology for Offshore Wind Turbines

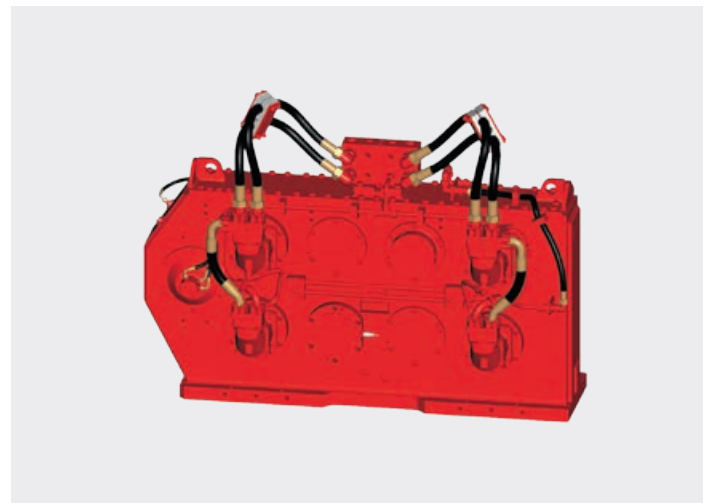
- Heavy duty pile driving equipment and accessories
- Customer made solutions and adaptations
- Drivability analysis
- Repair- and maintenance-services 24/7
- Spare parts management



MÜLLER MS-32 HFV vibrator

When fitted with a special compacting plate, the MÜLLER MS-32 HFV vibrator can be used for soil compaction. It can even be used underwater.

- Variable from 0 to 40 Hz
- Special sensors measure rpm and detect angles during the compaction process
- Modified for continuous operation and underwater use
- Approved for 10° gradient in all directions
- Automatic compaction cycle (start/compact/stop)
- Optional: radio remote control with automatic display of operating data, amplitude, and static moment
- Optional: graphic display via MS-DATA and webTK
- Powered by MÜLLER power pack



MÜLLER MS-U 160 S clamping device

Internal clamping for foundations with thin-wall tubes and very small diameters (d = approx. 120 mm, depending on wall thickness and length)

- Does not damage the coating on tubes
- Also suitable for use in heavy soils
- Reduces the number of operations normally required



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