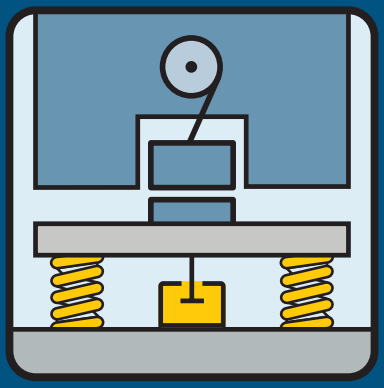
GERB
Vibration Control Systems

Elastic Support of Presses



Elastic Support of Presses

Typical Spring Viscodamper®
Combination for Elastic Support of Presses

During the operation of presses, strong vibrations are caused by speed changes of moving parts, the impact of the ram and especially during cutting processes, which can lead to unacceptable disturbance and inconvenience in the neighbourhood. Moreover, high-frequency vibration components lead to structure-borne noise in adjacent rooms.

Elastic support provided by GERB spring units can considerably reduce the vibrations caused by the press. Reductions in the vibration speeds – as a yardstick for the assessment of the vibration – of about 80% and more are possible.

A significant aspect for the dimensioning of the elastic support of presses is the type of the vibration excitation.

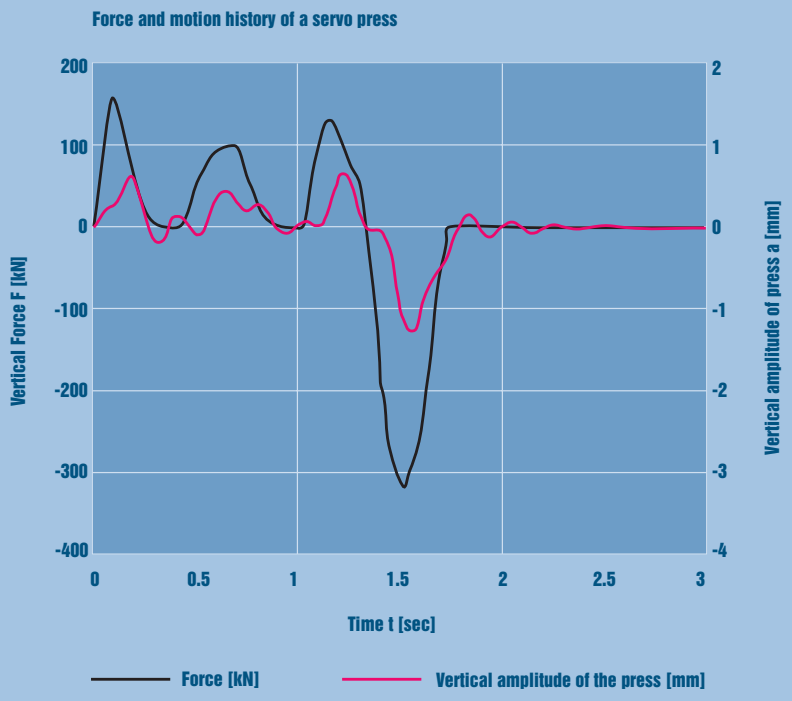
In the case of 1-crank and 2-crank presses, imbalance in the crank operation of freely acting forces of inertia at the crankshaft level can cause severe tilting motions of the machine. In such a case, it may become necessary to provide a foundation block as a vibration-damping mass or an enlarged base frame to enhance the rotational stability in order to restrict the movements of the system within permissible limits.

In 4-point crank presses, transfer and hydraulic presses, the vibrations are caused primarily by the vertically accelerated or retarded masses.

With the elastic support of larger hydraulic presses, and also with mechanical car body and transfer presses, low-frequency vibrations often need to be taken into consideration either as vibrations of the moving masses or as pillar vibrations. These frequencies may be in resonance either with the natural frequencies of buildings or with the natural bending frequencies of wide-span floors and lead to severely enhanced levels of vibration caused by the resonance.

Presses equipped with a servo drive place an extraordinary demand on the elastic support. Specially adapted support systems are necessary as a result of the high flexibility of this type of press design.

GERB has developed support systems, in close cooperation with renowned manufacturers of servo presses that meet these requirements.



Typical Spring Viscodamper®
Combination for Elastic Support of Presses

SCHULER Transfer Press – Germany

AP & T Hydraulic Press – Sweden

For elastic support of presses GERB offers:

Spring units

- Spring units with high-quality cylindrical helical compression springs in rigid housing shells.

Viscodampers®

- VISCO® damping connected in parallel to spring units ensures machine stability and enhances its efficiency. However, the damping also means that the machine quickly comes to rest or returns to its idle state after each stroke.

Blocking devices

- It is necessary to be able to transfer the tool easily between the fixed foundation and the elastically supported press for a streamlined process of tool change. GERB has developed different blocking devices for this purpose. These can be supplied as separate block supports or even as blocking systems that are integrated into the spring Viscodamper® combinations.

Engineering

- Apart from the supply of spring units and Viscodampers®, GERB provides overall planning and complete civil engineering for the press foundations.

Assembly

- GERB also offers services for the installation or supervision of installation of the elastic support. In case of subsequent settlement of the foundation soil, if required, GERB fitters realign the press within a short period of time.

Vibration measurements

- Measurements can be made to determine in advance whether a press intended to be installed will cause impermissible or unreasonable levels of vibration in the vicinity, just as the options for reducing the vibrations can be specified prior to installation.

Please consult our project engineers for this purpose.

PRESSMASTER – India

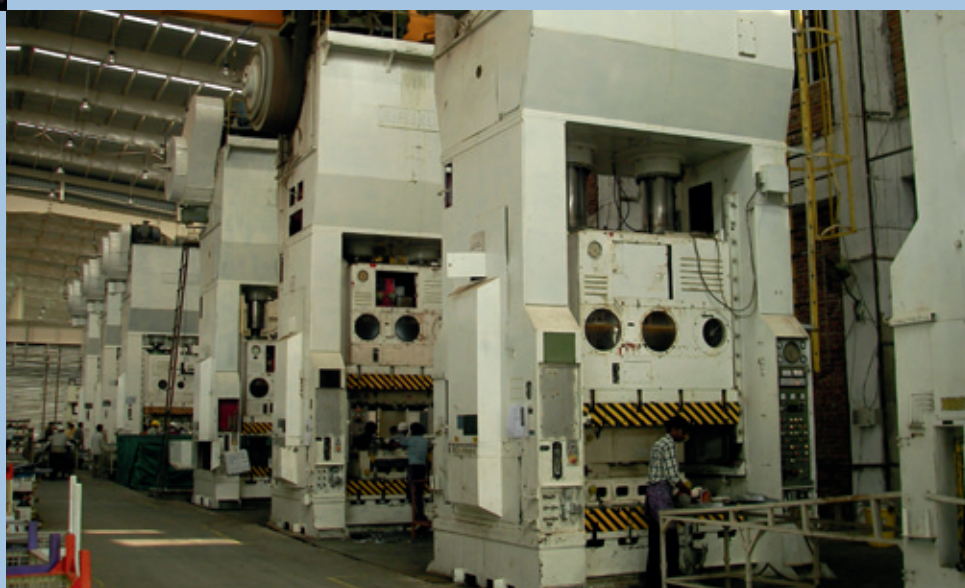
KOMATSU Press Line – Shanghai, China

ISGEC - India

SMS EUMUCO HASENCLEVER - Austria

The installation on prestressable GERB spring units ensures the press can be easily aligned and even realigned in case of sinking supports. Usually, no bolts are required for fixing of the spring units. Fixing is done with self-adhesive resilient pads supplied by GERB.

Acceleration levels used as a yardstick for the vibration and wear of presses are consistently lower in isolated installations than in the case of rigid installation.



KIESERLING – India

GERB Vibration Control Systems

Elastic Support of Presses
Reference List (Selection)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SCHULER BEUTLER

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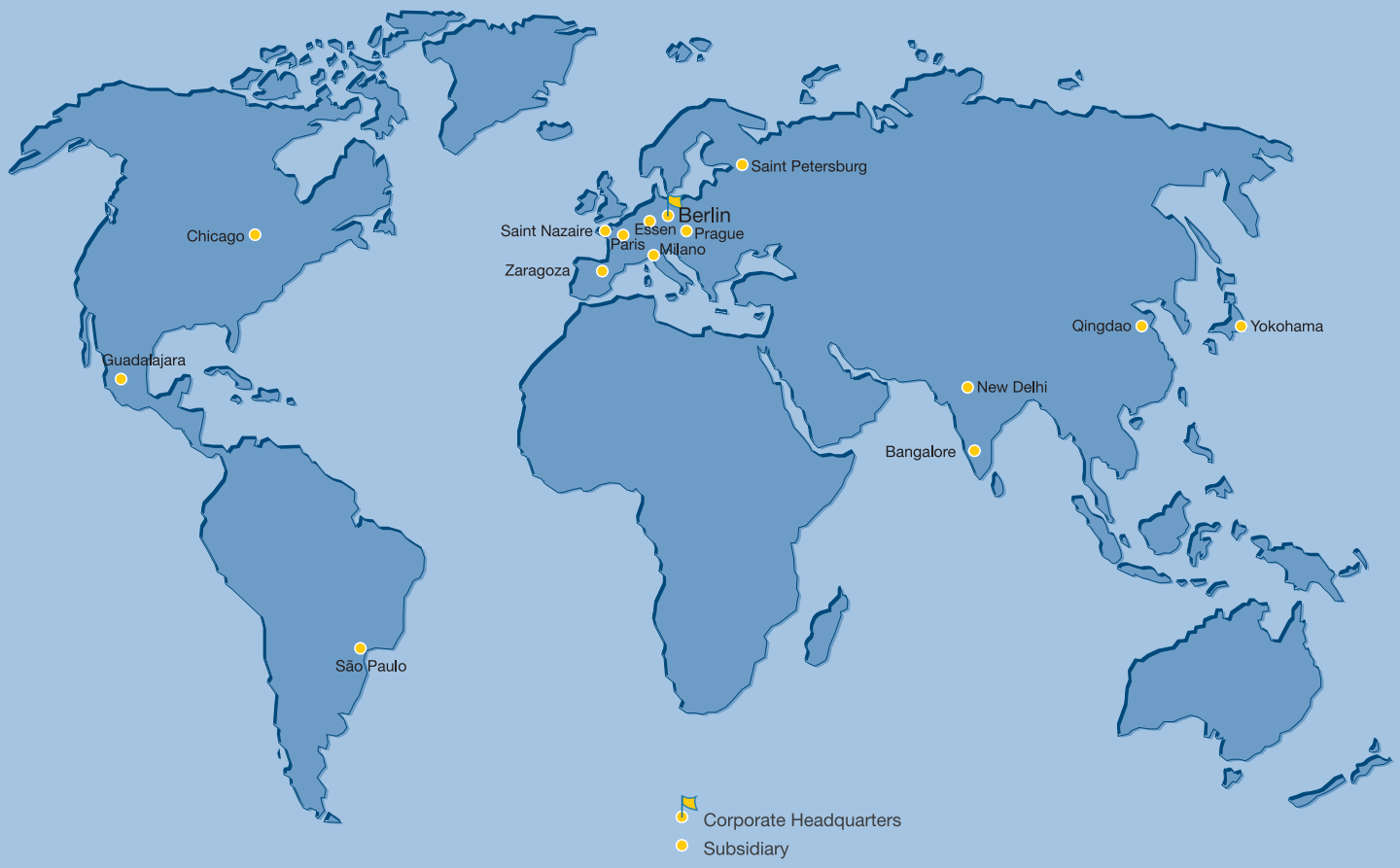
Country	Client	City	Manufacturer	Capacity [kN]
Forging Presses				
Austria	Böhler	Kapfenberg	SMS Eumuco	132,000 144,000
	Bernhofer	Höhnhart	Müller-Weingarten	7,000
China	Wuxi Turbine Blade Fact	Wuxi, Jiangsu	SMS Meer	224,000
	Wendeng Tianrun Forg.	Wendeng, Shandong	Müller-Weingarten	128,000
	Shaanxi Fastgear Co.	Xian, Shaanxi	Müller-Weingarten	35,000
	Quanzhou HengLiDa	Quanzhou, Fujian	Voronezh	25,000
France	Snecma	Gennevilliers	Müller-Weingarten	80,000
Germany	Buderus	Wetzlar	Müller-Weingarten	63,000
	Thyssen-Umformtechnik	Remscheid	Lasco	8,000; 10,000
	Gerlach	Homburg	Eumuco	120,000
India	Sona Okegawa	Gurgaon	Enomoto	12,500
	Sunstar Forging	Greater Noida	Smeral	40,000; 16,000
	GKN Driveline	Chennai	Komatsu	16,000
Italy	Valsecchia Giovanni	Valmadrera	Manzoni	2,500
	Berco	Copparo	Müller-Weingarten	144,000
	Molla	Solbiate Arno	Voronezh	80,000
Mexico	Forjamex		Eumuco	5,000
Slovenia	Unior	Zrece	Müller-Weingarten	3,200
Taiwan	Yung-Tai		Müller-Weingarten	10,000
	OZE Industrial	Taichung	Chin Fong	10,000
USA	Thyssen Krupp Gerlach	Denville/Illinois	Eumuco	120,000
	Utica	Utica/New York	SMS Hasenclever	80,000
Presses for Sheet-Metal Processing				
China	VW	Shanghai	Schuler	
	GM	Shanghai	Müller-Weingarten	
	BMW-Shanghai	Shenyang, Liaoning	Schuler	
	Dong-Feng Nissan	Guangzhou, Guangdong	Komatsu	
	Great Wall Auto	Baoding, Hebei	Fagor Arrasate	
	Chery Auto	Wuhu, Anhui	Jier Machine-tool Group	
Czech Republic	Skoda	Mlada Boleslav	Müller-Weingarten	
France	Renault	Sandouville	AIDA	
Germany	AUDI	Ingolstadt	Müller-Weingarten	
	BMW	Dingolfing	Schuler	
	DaimlerChrysler	Sindelfingen	Müller-Weingarten	
	Opel	Rüsselsheim	Schuler	
	VW	Mosel	Müller-Weingarten	
Great Britain	IBC Vehicles	Luton	Müller-Weingarten	
	Rover	Swindon	Müller-Weingarten	
India	Caparo	Gurgaon/Jamshedpur	Isgec/Kaushico	
	JBM	Gurgaon/Manesar	Isgec/HMT/Erfurt/Schuler	
	SKH	Gurgaon/Manesar/Pune	Keiserling/HMT/Emco Pr	
	Tata Motors	Sanand	Schuler	
Italy	Iveco-Fiat	Brescia	Clearing	
Japan	Kikuchi Press	Hamura	AIDA	
Korea	Sung Woo Coil Center	Yang San	Ssang Yong Press	
	Samsung Motor	Pusan	Kojima, Fukui Kikai	
Malaysia	Proton	Petaling Jaya	Komatsu, Hitachi Zosen	
Mexico	Benteler de Mexico	Puebla	Umformtechnik Erfurt	
Netherlands	Volvo Car		Müller-Weingarten	
	Polynorm	Bunschoten	Dieffenbacher	
Spain	Opel	Zaragoza	Müller-Weingarten	
	SEAT	Barcelona	Umformtechnik Erfurt	
	VW	Barcelona	Arrasate	
Sweden	Volvo Car	Olovström	Müller-Weingarten	
USA	Ford	Dearborn/Michigan	Eumuco	
	Radar	Warren/Michigan	Schuler Brazil	

GERB
worldwide



The following information is required for the design of elastic support systems of presses:

- Type and manufacturer of the press
- Arrangement drawing (Installation plan)
- Total weight of the press
- Weight of the unbalanced moving masses
- Stroke
- Number of strokes/min

In addition, for screw presses:

- Screw diameter

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GERB Vibration Control Systems

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