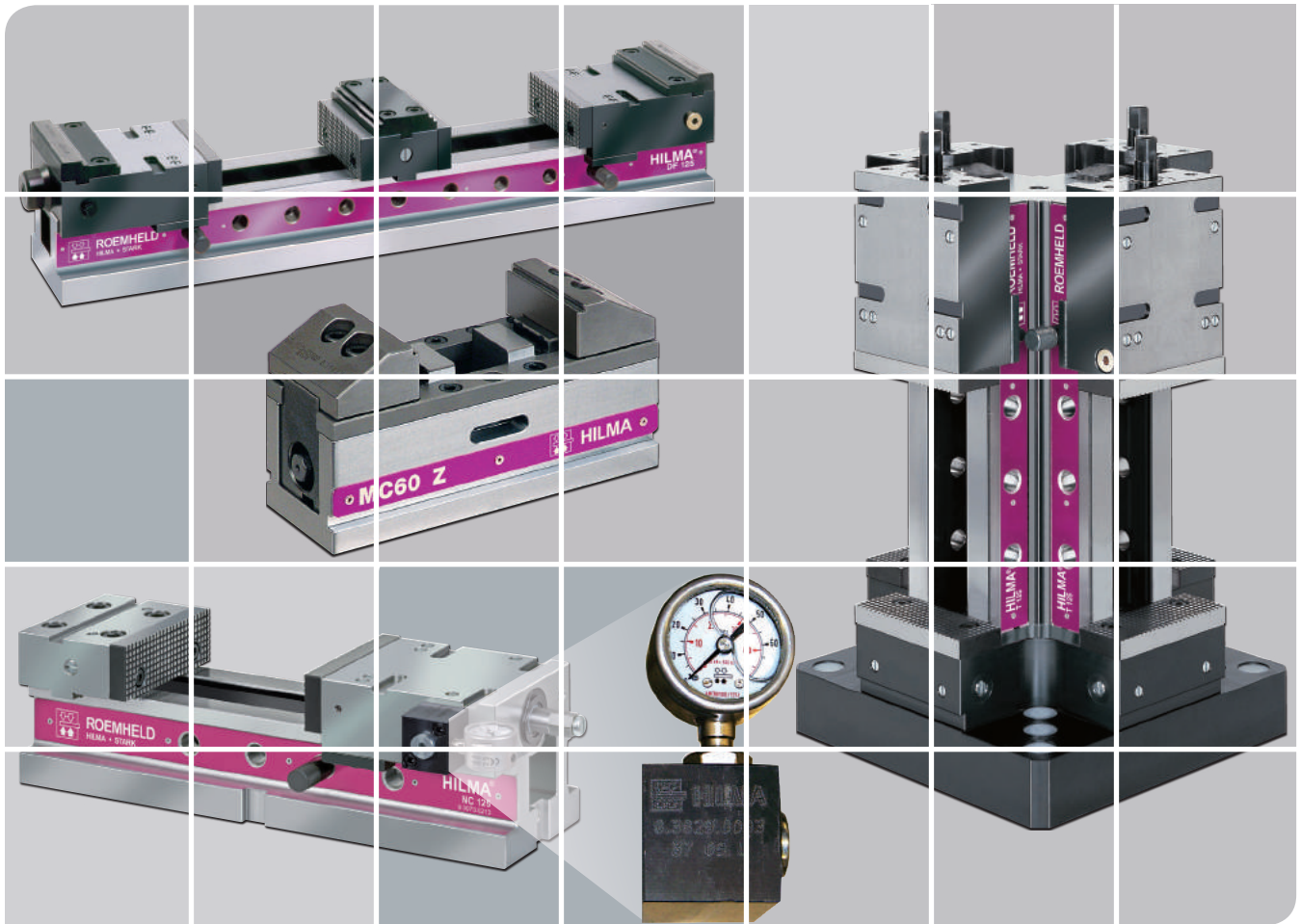


Precision Machine Vises

WE HAVE A MACHINE VISE FOR YOUR APPLICATION



View all of our Machining Vises at: **roemheld-usa.com**



ROEMHELD

HILMA ■ STARK

Carr Lane Roemheld Mfg. Co.



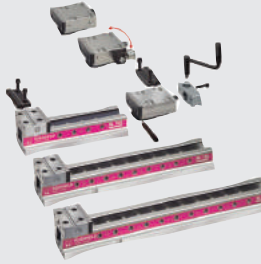

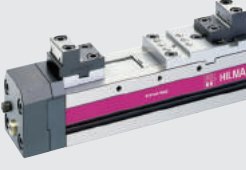
927 Horan Drive • Fenton, MO 63026
Phone (636) 386-8022 • Fax (636) 386-8034
Email info@clrh.com • roemheld-usa.com

CNC Precision Machine Vise Options From Carr Lane Roemheld

	NC Series			SCS Series				MC Series - Hydraulic						MC Series - Mechanical					
																			
	High precision production machine vise with force gauge Top Seller			Optimal features for unopposed 5-axis and multiple side machining				Hydraulic 5-axis vise. Available in standard vise or concentric versions						Mechanical 5-axis vise. Available in standard vise or concentric versions					
Actuation Type	Hydraulic or Hydro-Mechanical			Hydraulic or Mechanical				Hydraulic						Mechanical					
Jaw Options	Face Jaws or Top Jaws			Top Jaws				Top Jaws						Top Jaws					
Mounting Options	Horizontal Mounting Vertical Mounting			Horizontal Mounting Vertical Mounting				Horizontal Mounting Vertical Mounting						Horizontal Mounting Vertical Mounting					
Part Quantity	Max 4 Parts			Max 1 Part				Max 1 Part						Max 1 Part					
								Standard			Concentric			Standard			Concentric		
Jaw Width (mm)	100	125	160	80	80H	120	120H	40	60	60H	60	100	125	40	60	60H	60	100	125
Base Length (mm)	380	430	550	206	227	260	282	117	168	185	170	260	465	117	168	185	170	260	465
Base Height (mm)	70	80	95	85	85	100	100	44	57	57	70	100	130	44	57	57	70	100	130
Max Opening	205	225	309	n/a		n/a		n/a						n/a					
Max w/Top Jaw	386	431	573	155		200		70	106	106	150	204	400	70	106	106	150	204	400
Max Clamp Force (lb)	5600	9000	14,000	5600	4500	9000		1800	3300		3300	5600	7800	1800	3300		3300	5600	7800
	<ul style="list-style-type: none">•0.0004" accuracy•Optional clamp force Indicator•Benefits of hydraulics without pumps or hoses•The only vise available that can tell you how much clamping force is on your part•Compatible with CARVESMART™ dovetail quick change jaw system			<ul style="list-style-type: none">•For 5-axis machining and pallet systems•Mechanical clamping•Reversible jaws yield clamping ranges of 1/4" to 6.1" and 5/16" to 7.87"				<ul style="list-style-type: none">•For 5-axis machining and pallet systems•Simple and robust construction•Smooth surfaces for easy cleaning•Comprehensive jaw program						<ul style="list-style-type: none">•For 5-axis machining and pallet systems•Simple and robust construction•Smooth surfaces for easy cleaning•Comprehensive jaw program					

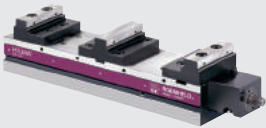





CNC Precision Machine Vise Options From Carr Lane Roemheld

Concentric	KNC	VARIO	DF Series	CS Series
				
Hydraulically operated self-centering vise for concentric clamping of cubic and cylindrical workpieces	Our premium product for highest quality, process safety and precision	Flexible options for our ne series high precision production machine vise	Double clamping systems mechanical-hydraulic and hydraulic-hydraulic for single and row clamping	Compact clamping system, mechanical with power amplifier or hydraulically operated
Hydraulic	Hydro-Mechanical	Hydraulic or Hydro-Mechanical	Hydraulic or Hydro-Mechanical	Hydraulic or Mechanical
Top Jaws	Top Jaws	Face Jaws or Top Jaws	Face Jaws or Top Jaws	Face Jaws or Top Jaws
Horizontal Mounting Vertical Mounting	Horizontal Mounting Vertical Mounting	Horizontal Mounting Vertical Mounting	Horizontal Mounting Vertical Mounting	Horizontal Mounting Vertical Mounting
Max 1 Part	Max 1 Part	Max 4 Parts	Max 2 Parts	Max 1 Part
100 125 160	100 125 160	120H 125 160	100 125 125L 160	80 80 80
395 509 605	300 440 540	282 430 560 720 550 750	540 560 720 750	200 280 360
95 105 125	90 100 115	100 82 95	70 82 82 95	85 85 85
n/a	140 240 300	205 365 225 355 515 309 509	130 122 205 188	70 75 80
316 436 520	230 354 436	390 550 434 564 724 578 778	279 288 371 397	150 230 310
3600 5600 9000	5600 9000 11,250	5600 9000 13,500	5600 9000 11,250	4500
<ul style="list-style-type: none"> •Hydraulic actuation •0.0004" repeatability per jaw •3.5" jaw movement •Accepts custom jaws •Well protected against coolant and chips 	<ul style="list-style-type: none"> •0.0004" accuracy •Accessories include clamp force selector angular drive, etc. •Benefits of hydraulics without pumps or hoses •Compatible with CARVESMART™ dovetail quick change jaw system 	<ul style="list-style-type: none"> •0.0004" accuracy •Optional clamp force Indicator •Benefits of hydraulics without pumps or hoses •Very customizable •Compatible with CARVESMART™ dovetail quick change jaw system 	<ul style="list-style-type: none"> •Each side clamped independently •Clamps 2 parts of equal or different sizes •0.0004" repeatability •Hydro-mechanical or full hydraulic actuation •Compatible with CARVESMART™ dovetail quick change jaw system 	<ul style="list-style-type: none"> •Mechanical with power amplifier or hydraulic •Rapid and easy clamping/unclamp by short lever movement



CNC Precision Machine Vise Options From Carr Lane Roemheld

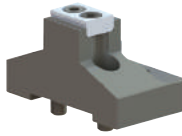
	DS Series			DCS Series		Duo Series		TS Tower		
										
	Double clamping systems mechanical and hydraulic operated, for single and row clamping			Dual Compact clamping system, mechanical with power amplifier or hydraulically operated		Compact clamping system series DUO, mechanical operated		Mechanical Tower for up to 16 equal or different parts. Hold 1 to 4 parts per face up to 348mm long		
Actuation Type	Hydraulic or Mechanical			Hydraulic or Mechanical		Mechanical		Mechanical		
Jaw Options	Top Jaws			Top Jaws		Top Jaws		Top Jaws		
Mounting Options	Horizontal Mounting Vertical Mounting			Horizontal Mounting Vertical Mounting		Horizontal Mounting Vertical Mounting		Tower		
Part Quantity	Max 4 Parts			Max 2 Parts		Max 2 Parts		Max 16 Parts		
Jaw Width (mm)	100	125	125L	80	80L	80	80	100	125	125L
Base Length (mm)	420	430	510	280	360	200	240	400	400	400
Base Height (mm)	71	82	82	85		70	70	500	620	652
Max Opening	n/a			40	61	n/a				
Max w/Top Jaw	334	350	430	107	142	72	94	266	350	476
Max Clamp Force (lb)	5600	9000	9000	4500		2700		5600		9000
	<ul style="list-style-type: none"> • Clamp up to 4 parts with floating central jaw • Mechanical or full Hydraulic Actuation • Safe loading and unloading using the 3rd hand function 			<ul style="list-style-type: none"> • Mechanical with power amplifier or hydraulic actuation • Clamping points work independent of each other • Precisely adjustable and repeatable clamping forces 		<ul style="list-style-type: none"> • Mechanical actuation • One-sided working of the spindle • Rapid, customer friendly double clamping • Precisely adjustable clamping forces • Compact design 		<ul style="list-style-type: none"> • Tower based on DS vise series • Up to 4 parts per face • Excellent for production machining • Safe loading and unloading using 3rd hand function 		



CNC Precision Machine Vise Jaws From Carr Lane Roemheld



Step Jaw



Step Jaw w/Insert



Vee Jaw



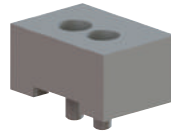
Jaw inserts
with abrasive coating



Clamping jaw, extra high



Pendulum Jaw



Soft Jaw



Jaw inserts
with serrated grip

We offer a full spectrum of vise jaw options.



Precision step jaw



QIS base jaw with
permanent magnets



QIS interchangeable
jaw-soft



Pendulum jaw



Vee jaw



Clamping jaw, extra large



QIS interchangeable
jaw-crowned



QIS interchangeable
jaw-stepped



QIS interchangeable
jaw-smooth



Clamping jaw, soft



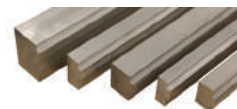
QIS interchangeable
jaw-serrated



QIS interchangeable
jaw-prismatic



CARVESMART™
steel master jaw set



CARVESMART™
aluminum jaw stock



Top step jaw

Machine Vise Pressure Gauges Provide Enhanced Precision

Problem: Machine vises have many benefits, including precision, accuracy, and repeatability. The quandary, though, can be knowing how much pressure to apply to the crank handle to generate clamping force. Depending on the equipment and set up, if too much pressure is applied, a shop may experience tool breakage and machine downtime.

Solution: A HILMA machine vise with a pressure gauge allows parts to be safely clamped ready for machining. This helps avoid clamping forces which are too low or excessive, thus enhancing process safety.

Pressure Gages Deliver Accurate Clamping Force:

Machine vises have long been a boon to manufacturing, but engineers often have had problems with knowing how much pressure to apply to the crank handle to generate clamping force. Too much clamping force results in tool breakage and machine downtime.

This was the problem at Atlas Copco Construction Tools of Essen, Germany, especially after a change of metal cutting machines. Michael Beer, equipment engineer for fixture construction at Atlas Copco, explained. "With the old equipment, parts were machined on two sides at a time, but the new system only machined them on one side. As pressure came only from one side, the workpiece moved.



"This issue occurred when machining steel forgings weighing up to 1.2 tons, which are used to produce the main components of hydraulic hammers. The largest parts are up to 900 mm long with side lengths of 490 mm. The hydraulic hammer range, which has tools



varying in length from 1000 to 1900 mm, consists of a total of 13 variants of the ›MB‹ and ›HB‹ series. Some 250 employees are involved in producing hydraulic add-ons to be used in mining, demolition, clearance and other tasks in the construction industry.

Precision clamping

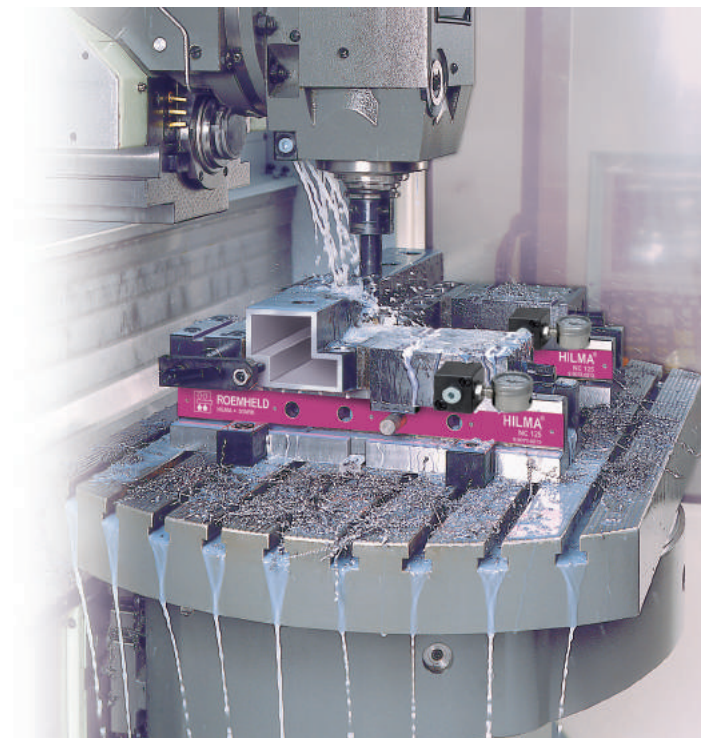
As the forgings have an uneven surface, this is milled by about 15 mm. During machining, HILMA Varioline VL 160 machine vises, which have a clamping force of five tons, ensure the components are safely held in place.

Michael Beer first assumed that a defect in the clamping systems might be the reason for the tools breaking. Another issue was that some operators felt that the more you pull the crank of the machine vise, the more clamping force you generate. This however is not true and led to several cranks becoming defective and having to be replaced. Andreas Menn of Roemheld's fitter team helped Mr. Beer to identify the root cause. Mr. Menn was quick to find out that the workpiece supports with grip inserts used by Atlas Copco were the true cause for the breakage. All workpieces shifted during clamping, which meant they were not held with the full clamping force.

Safe processes

Mr. Menn suggested retrofitting the HILMA machine vises with pressure gauges, which is an option thanks to the mechanical-hydraulic power transmission of the clamps. The clamping force indication allows the required force, which can be read throughout the





Hilma machine vises are sold in a variety of models and sizes in North America by Carr Lane Roemheld Mfg. Co.

The success of HILMA machine vises with a pressure gauge was quickly apparent: Since these solutions have been in place, no tools have broken. Michael Beer is enthusiastic: "If I had known before that VL 160 with a pressure gauge costs just (\$250) or so more but offers such a great value for money, I would have ordered all the vises with this add-on upfront." The remaining four vises were retrofitted during production.

The extra cost has already paid for itself in the fact that there has been no tool breakage.

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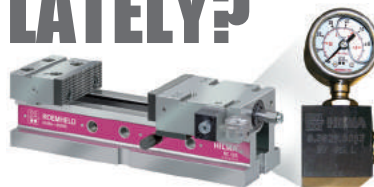
machining process, to be precisely applied. This helps avoid clamping forces which are too low or excessive, thus enhancing process safety.

For roughing, the workpiece is clamped with full force, but the clamping force can be sensitively and precisely adjusted for finishing. For repeat orders, the required clamping force can be precisely reproduced so that the unique conditions ensure production of the same high quality. If the workpiece is a housing or a similar part or if soft materials have to be clamped, the pressure gauge helps avoid deformation resulting from excessive clamping pressure.

Michael Beer was immediately struck by the benefits demonstrated by the fitter. What is more, he suggested the use of clamping jaws with specific coating. Their rough surface would clearly enhance their holding power so that the workpiece can be held safely and precisely even at a reduced clamping force. With this approach, higher machining forces may be applied during production.

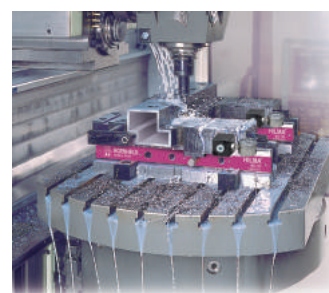
Atlas Copco had been using Hilma/Roemheld clamps for over two decades, recalls Mr. Beer: "I do know that HILMA's products are a bit more expensive, but they are better and they offer great, fast and cheap service."

HEARD FROM YOUR VISES LATELY?



Ours Tells You How Well It's Working

Our NC vise is available with an *integrated force gauge* which tells you how much holding force is being applied to your workpiece. Minimal effort on the crank handle results in extremely high holding force



because of the built-in hydraulic power of the vise. Now you'll know if your part is being held properly.

- Better clamping quality
- Correct clamping force every time
- Consistent process control
- Reduced tool breakage
- Workpiece deformation reduced
- Ideal for roughing and finishing
- Reduced operator fatigue

View all of our machining vises at: **roemheld-usa.com**



ROEMHELD

HILMA ■ STARK

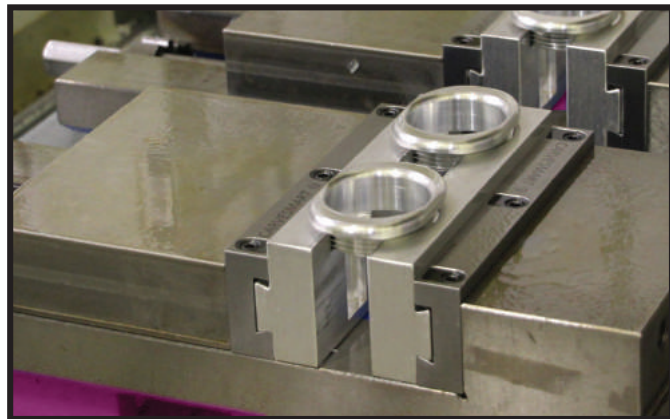
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QUICK ■ ACCURATE VERSATILE ■ STURDY

The patented **CARVESMART™** Quick Change Vise Jaw System is a complete package of dovetailed jaws for production and toolroom vises that are accurately changed in seconds. **CARVESMART™** extruded aluminum soft jaws can be saw cut to any length.



- **CLAMP NUTS:** 1018 steel with QPQ surface treatment. QPQ is wear and corrosion resistant. It also adds fatigue strength and lubrication to the surface. Smooth as silk.
- **SMARTstop™** is an internal to the jaw set, slot and pin system for jobs that repeat. SMARTstopped front loading jaws will relocate $\pm 0.0003"$.
- **Extruded** jaw stock can be cut to any length from 1/2" to 94" available in five profiles.
- **Fully accessorized** with dovetailed hard jaws, 1018 and ductile cast iron jaws.
- **SPEED SCREWS:** Black oxidized, alloy steel differential screw. The RH/LH simultaneous travel moves at twice the speed of a standard single lead screw. It lifts and pulls the clamp nut on to the dovetail without gauling.



Contact us today, and get faster jaw changes immediately!



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