

HAGEN & GOEBEL



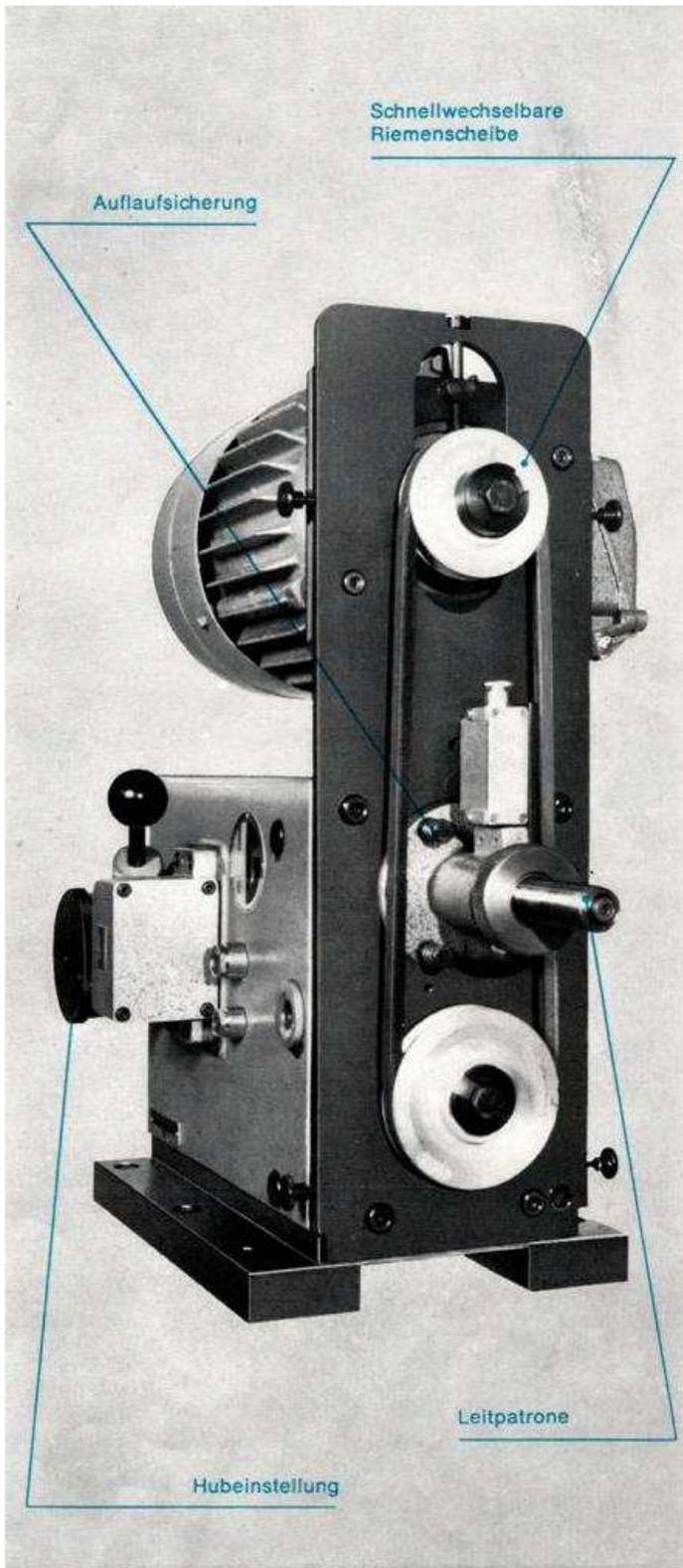
75 Years

1933 - 2008

Quality Made in Germany

**Tapping units GE-8 to GE-42 version1
for tap cutting and tap forming**

Construction characteristics of types GE-8 to GE-42



Automatic lead screw controlled feed

All units in the GE-8 to GE-42 series have a provision for fitting lead screws. A lead screw and nut is required for every different pitch. Good accessibility permits an instant change of the lead screw. The lead screw and nut provide a positive spindle feed. As the

lead screw has a lead identical to that of the tap, the threads cannot be tapped incorrectly.

The hardened and ground lead screws with individually fitted, adjustable nuts have an extremely long service life and ensure threads true to gauge. The tap life is improved considerably as the feed is accurately matched to the head.

Safety devices to guard against tap breakage

The units are provided with an over-run safety device and a safety chuck. The combination of these two safety devices enables even blind holes to be tapped to their full depth without risk. Tap breakage is also practically eliminated, even if the tap hits solid material.

Over-run protection

If the tap hits solid material, then further rotation of the spindle lifts the lead screw mounting against a preset axial spring force. This actuates a limit switch which immediately reverses the spindle rotation. The motor is stopped as soon as the spindle has returned to its initial position, irrespective of whether single or cycle or continuous cycling has been selected.

The trouble free operation of the over-run protection can be relied on when lead screw controlled feed is in operation, even when the smallest permissible tap for the particular type of machine is used.

Safety chuck

A tap chuck with an adjustable slipping clutch is fitted as standard equipment for types GE-8 to GE-42. The use of a high grade clutch plate results in extremely low wear. The clutch slips immediately if an overload of the tap occurs, either due to a blunt tool or a core hole with a diameter too small. The tap is stopped immediately and the axial force produced by continuous spindle rotation immediately initiates the over-run protection, so that the spindle returns to its initial position with counter-clockwise rotation. The maximum torque setting of the overload clutch is adjusted manually with the aid of a scale to suite the tap used.

Stroke adjustment

The depth of the stroke is adjusted with the aid of a graduated scale. The motor brake operates so consistently, that a repetitive accuracy of approx.

+/- 0.1 mm (+/-0.004“) is obtained, depending on spindle speed. A four-way depth stop is available as optional equipment, which enables up to four different depths of thread to be preset and used in any sequence by means of a selector switch. This equipment is of particular advantage for workpieces where several threads have to be tapped to different depths.

Tap chucks

The types GE-8 to GE-42 units are each equipped with tap chucks with short DIN 238 taper which hold the tap securely. The tap chucks machines are equipped with the previously described overload clutch.

On request, all machines can also be equipped with spindles having a Morse taper.

External threads

Short external threads can also be cut by using our die-holders instead of a tap holder.

The die-holders are designed to accept dies to DIN standards. The available sizes of die-holders are listed in our special “Die-holders” catalogue sheet.

Left hand thread

All tapping units can also be used for cutting left hand threads by fitting an additional reversing switch. Left hand leaders and nuts are of course required.

Drive

The drive of the electrically controlled tapping units is provided by brake motors of adequate size, which reverse the spindle rotation with precision even at the maximum permitted frequency of operation.

The motor drives the spindle via easily changeable V-belt pulleys and gears. The transmission gears are hardened and ground and run in an oil bath. Each machine can be matched to the intended application by selecting one of four or five available spindle speed ranges. The spindle speed range is determined by the gear ratio and can only be changed subsequently by rebuilding the gearbox. The standard equipment of each machine includes a set of V belt change pulleys. The nine different spindle speeds of the spindle speed range are obtained by selecting appropriate pairs of pulleys to suit the cutting speed required. The spindle speeds are arranged in geometric progressions with a common ratio of 1:1.25.

The motor windings are provided with special insulation, which permits extremely high frequency

of operation (see technical data). In extreme cases, where even higher frequencies of operation (=threads/hour) are required, thermal motor overload protection can be fitted which protects the motor from overload completely.

Double return speed

This feature can be reached with the use of a pole-changing motor with 750/1500 rpm.

Rapid traverse mechanism

This consists of a rapid traverse motor with belt drive on the ball-bearing-mounted leader. The rapid traverse control can be applied to the following sequence of operations:

- a) rapid traverse – feed – feed reverse – rapid traverse reverse*
- b) rapid traverse – feed – rapid traverse reverse*
- c) feed – rapid traverse reverse*

*only in connection with a four-way depth adjustment, 2 rapid traverse distances and 2 feed distances can be adjusted.

If required the correct performance has to be chosen; on the other hand the option exists to choose one of these programs with the selector switch.

Multi-spindle heads

All tapping units can be equipped with multi-spindle heads with fixed or adjustable spindle centres. For this purpose the machines have to be equipped with an additional flanged quill and counterbalance. Multi-spindle heads with fixed centres have to be ordered specially. Various standard designs of twin spindle adjustable centre tapping heads are at stock.

In-process-monitoring while tapping

To secure the tap-cutting or tap-forming processes will become more and more a main theme. Especially the automobile industries and the bender of them ask always for solutions.

Higher accuracies on the workpieces can only be guaranteed by checking every part. Caused on shorter cycle times there is no time to check.

Additionally the human error must be eliminated.

This can be only guaranteed by a special in-process-monitoring system.

Directly on the tool this system will check the torque while the process happened. By this system we have no errors and check every tool it selves.

On that way following paramters can be checked:

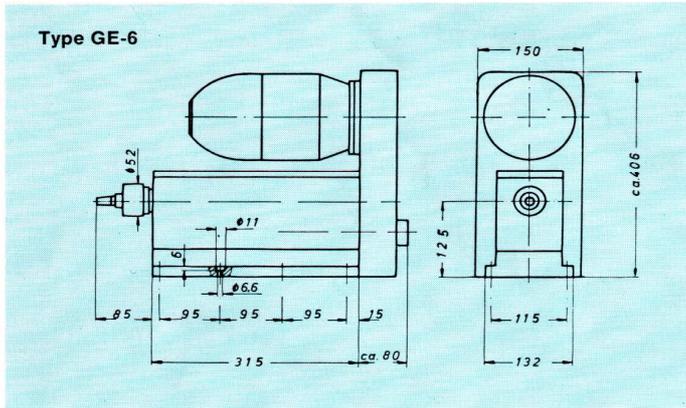
- Tool broken
- Tool life on end
- Missing tool or part
- To big or small hole inside the part

- Tap not ok concerning error on workpiece or tool
- Tap-cutting deepness not ok

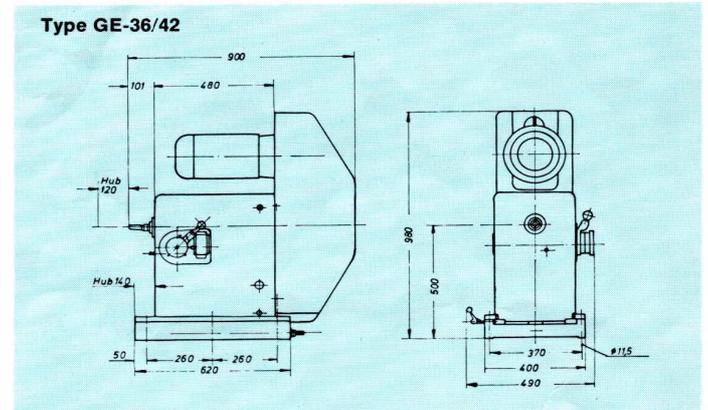
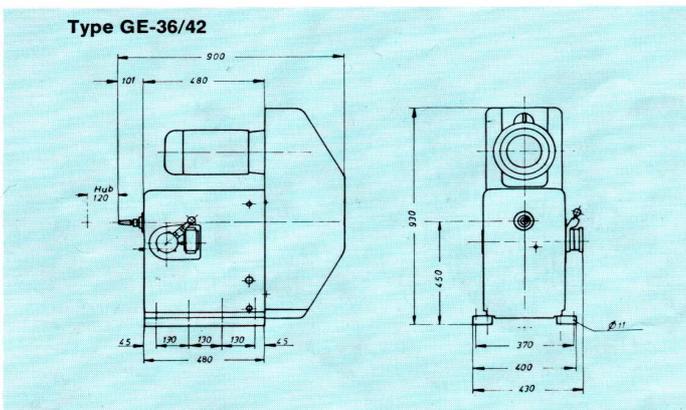
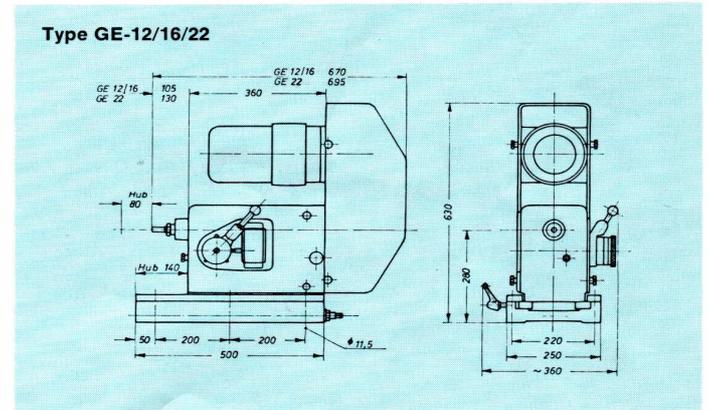
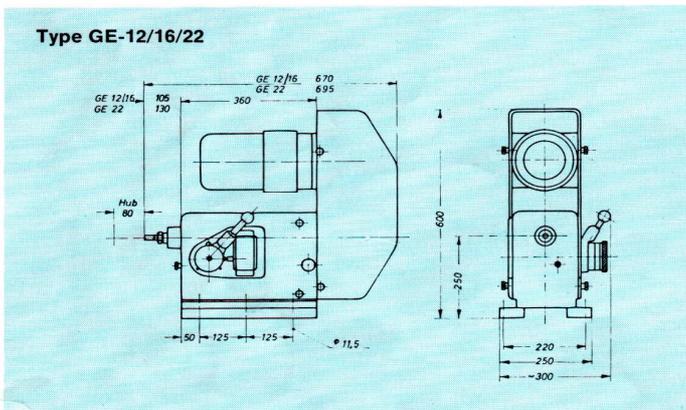
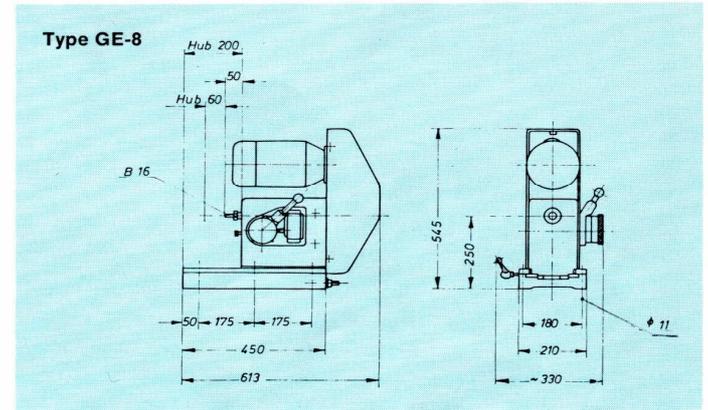
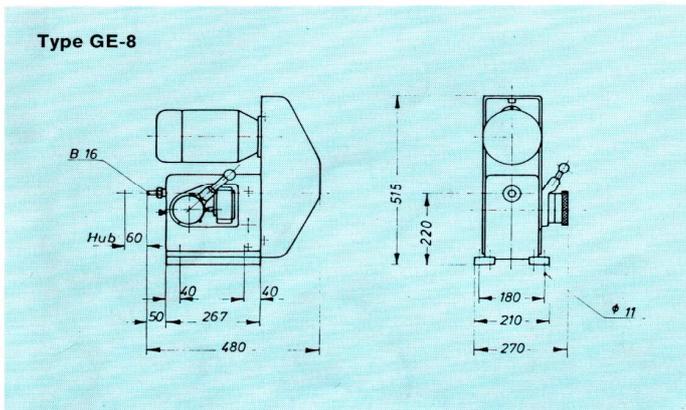
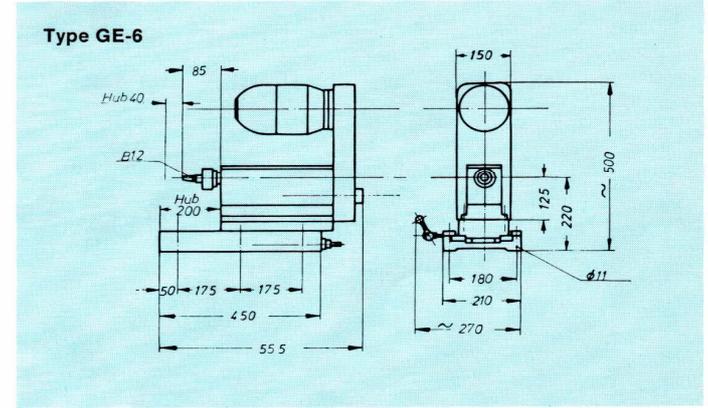
All cutting data can be saved and documented so that the quality regarding DIN EN ISO 9000ff can be guarantied. By this way the tap producer is able to realise zero error on his tap production. This system as stand alone or special machine solution can be delivered by us.

Technical data	GE 8	GE 16	GE 22	GE 42
smallest thread	M 3 / 1/8"	M 4 / 1/4"	M 6 / 1/4"	M 8 / 3/16"
type of threath	metric/whitworth	metric/whitworth	metric/whitworth	metric/whitworth
steel	M 8 / 3/16"	M 16 / 5/8"	M 22 / 7/8"	M 42 / 1,5"
cast iron	M 10 / 3/8"	M 20 / 3/4"	M 27 / 1"	M 48 / 1,75"
light alloy and brass	M 12 / 1/2"	M 22 / 7/8"	M 33 / 1,25"	M 60 / 2"
rated power	0,5/0,95/1,55	2,2	3,0/4,0/6,3 (Servo 15)	4,0
max.spindle stroke	60	80/(110+160)	80/(110+160)	120/(180+300)
max. operation frequency	2000	1600	1200	800
chuck taper	B 16	B 18	B 22	B 24
option taper	MT 2	MT 3	MT 3	MT 4
motor rpm	1000	1000	1000 (Servo 3000)	1500 (1000)
speed range	710-900-1120-1400-1800	450-560-710-900-1120	112-140-180-224-280	56-71-90-112-140
A	2240-2800-3550-4500	140-1800-2240-2800	355-450-560-710	180-224-280-355
B	450-560-710-900-1120	280-355-450-560-710	180-224-280-355-450	28-35,5-45-56-71
	1400-1800-2240-2800	900-1120-1400-1800	560-710-900-1120	90-112-140-180
C	280-355-450-560-710	180-224-280-355-450	280-355-450-560-710	112-140-180-224-280
	900-1120-1400-1800	560-710-900-1120	900-1120-1400-1800	335-450-560-710
D	180-224-280-355-450	112-140-180-224-280	56-71-90-112-140	18-22,4-28-35,5-45
	560-710-900-1120	355-450-560-710	180-225-280-355	56-71-90-112
E	112-140-180-224-280	56-71-90-112-140	(Servo step less up to 1800)	
	355-450-560-710	180-224-280-355		

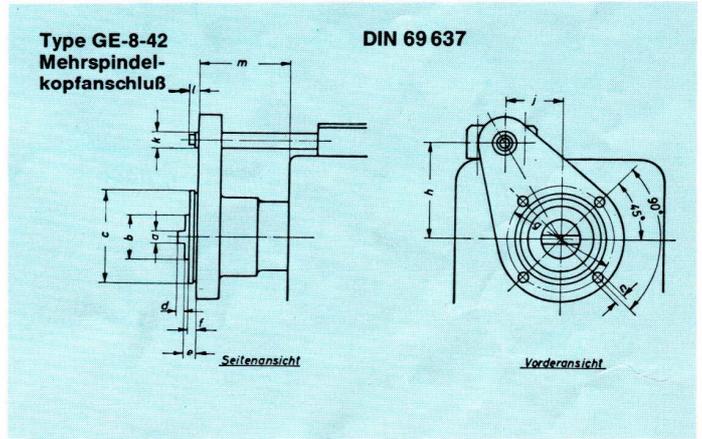
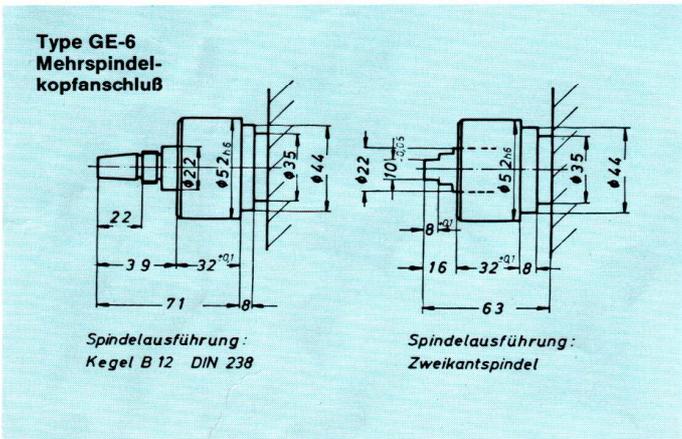
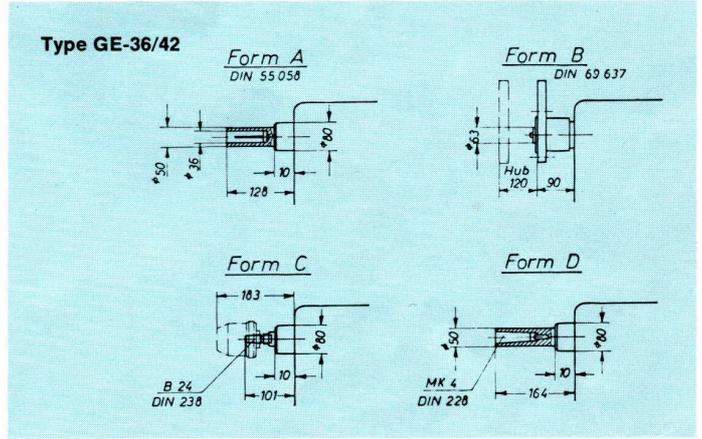
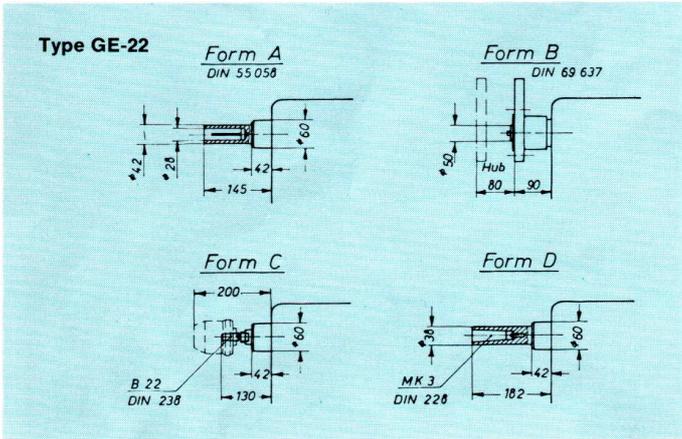
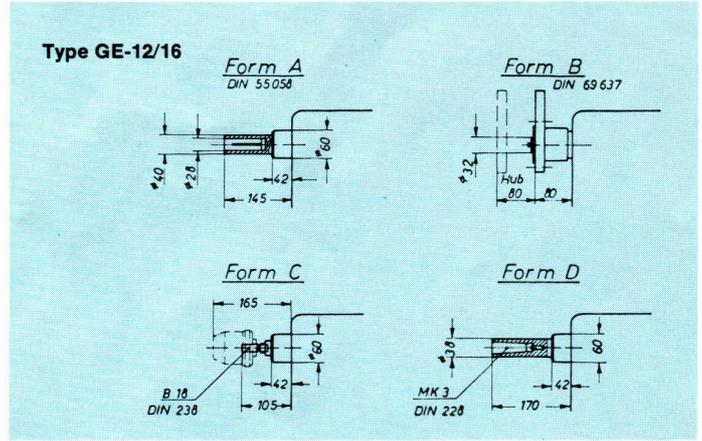
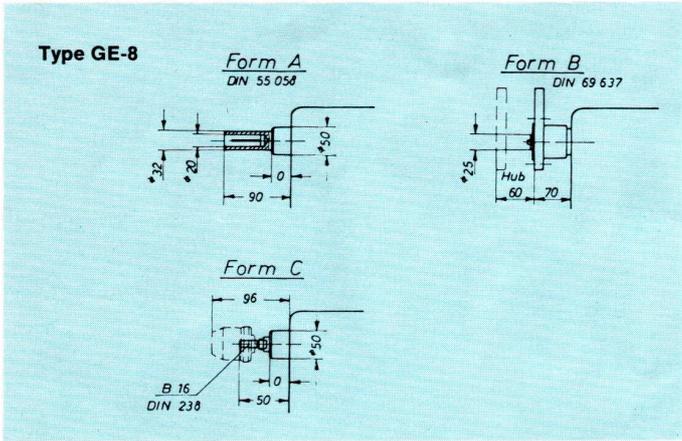
DIN 69631 ohne Verstellsschlitten



DIN 69632 mit Verstellsschlitten



Spindelaufnahmen (Alle Maßangaben in mm)



Maßtabelle für Mehrspindelkopfanschlüsse

Type	a _{es}	b	c _{i6}	d	e	f	g	h	j	k	l	m	n
GE-8	8	∅ 25	∅ 80	6	8	5	∅ 95	71	41	∅ 22	9	70	∅ 9
GE-12/16	8	∅ 32	∅ 80	6	8	5	∅ 95	84, 86	49	∅ 22	9	80	∅ 9,5
GE-22	12	∅ 50	∅ 100	10	8	5	∅ 120	84, 86	49	—	—	90	∅ 11,5
GE-36/42	16	∅ 63	∅ 125	14	8	5	∅ 150	77, 78	77, 78	—	—	90	∅ 14

Sonderausführungen auf Anfrage.
Änderungen vorbehalten.

HAGEN&GOEBEL special machine solutions for your tap production

CNC-controlled boring and tapping machine with 3 spindle units

each equipped with multi-spindle head
4 station rotary table and controller type
Siemens 840 D



**Highspeed tap-forming machine
equipped with 2 tapping machines type
HG-22 Servo, In-Process-Monitoring-
System on all 8 spindles, rotary table
Ø 810mm, automatic pickup system and
automatic remove of error parts.**

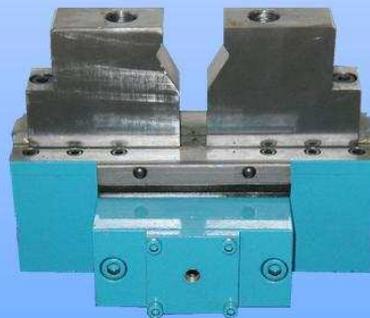
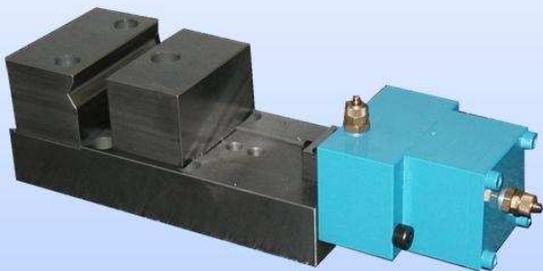
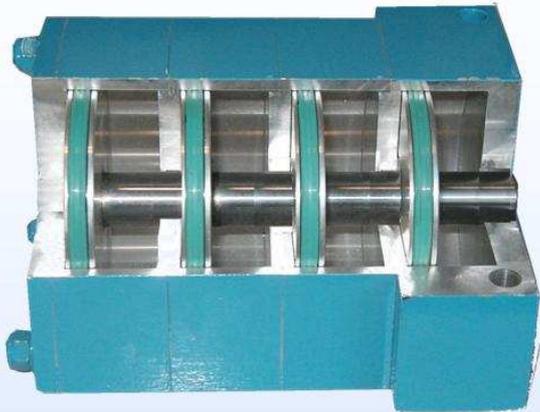


Horizontal tap cutting / forming machine for inside and outside taps

with highspeed tapping unit type GE22,
pneumatic central vice, workpiece length stop,
fast retract system and machine housing
concerning CE und UVV regulations.



Other Hagen&Goebel products



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