

heimatec®

Automatic material
handling in CNC lathes

...with the Grippex®
bar puller from heimatec



Grippex®

is a registered trademark of MPC Automation Systems AB

Distribution worldwide with the exception of France, the Netherlands, UK and USA.



High tech from heimatec – precision tools for efficient turning and milling machining

heimatec specialises in the development and manufacture of high-precision static and driven tools for all CNC lathes, CNC turning and milling centres and CNC machining centres.

The product range* extends from static BMT and VDI tool holders to driven tools and highly complex customised solutions. heimatec, headquartered in Renchen, has its own subsidiaries in the USA, India, Russia and China and has a worldwide network of trading partners.

***OUR PRODUCTS:**

- Static tool holders
- Driven tool holders
- Precision tool holders
- Tools for turning and machining centres
- Tools for longitudinal turning lathes
- Tool changing and quick-change systems
- Tool systems for gear manufacturing
- Digital tool management

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Increased productivity through automated material and workpiece handling in the machine

Because the acquisition costs are high, CNC lathes are rarely equipped with bar loading magazines. Often the lack of space in the workshop also prevents automation equipment.

For small batch production, a bar puller is often sufficient to replace the manual material feed. The revolver-based bar puller Grippex® II is the ideal solution.

The Grippex® bar gripper family from heimatec is available in three sizes: Grippex® Large, Grippex® Small and Grippex® Mini. Grippex® Mini can also be used as a workpiece gripper, making it ideal for unloading finished parts from a counter-spindle, for example.



Grippex® Large

ø 2 - 60 mm
ø 3 - 80 mm
ø 7 - 105 mm



Grippex® Small

ø 2 - 52 mm



Grippex® Mini

ø 0 - 38 mm

Advantages and main features of the Grippex® bar puller

- Instant setup – gripping is secured without any adjustment within the whole gripping range.
- Compact and light – adjacent turret tool positions need not be vacated
- Powerful – withstands high pressure – 15 bar.
- No need for a pressure reduction valve.
- Grippex doesn't need high pressure for pulling properly.
- It works from 0.5 bar onward (see the power diagram on next page)
- Clamps very close to the chuck, allowing for short overhang of the bar.
- Clamps hexagon bars without need for spindle orientation.

Grippex® clamps very close to the chuck



3.5 mm bar diameter 60 mm

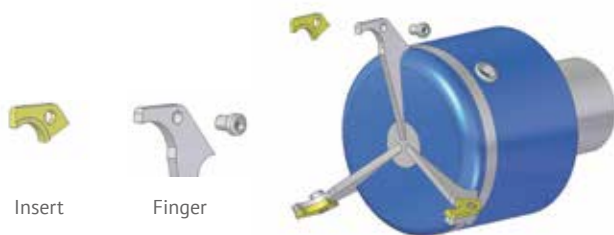
Functional Principle

- The bar puller is operated with the coolant system of the turning centre. When coolant ON clamps the gripper, when coolant OFF loosens the gripper. Maximum allowed coolant pressure: Grippex® Large, 20 bar; Grippex® Small, 15 bar; Grippex® Mini, 7 bar.
- The adaptation is through a tool holder with coolant supply or directly to a VDI turret.
- A valve (screw on the housing for releasing) enables fast opening of the gripper, when the coolant system is provided with a non-return valve, which delays the pressure drop on the gripper.
- An appropriate guide pipe in the spindle is essential, not only to avoid vibrations when rotating but also so that an excessively high inclination of the bar is prevented when pulling out.

Design and Handling

Easy Exchange of Inserts

Grippex® Large provides inserts, which can comfortably be exchanged even with the bar puller already mounted on the turret. The inserts are hardened to a degree of HRC57, which assures a long life of hard work. To be fitted, the insert is placed within the radius of the gripping finger and turned until its tapped hole matches the through-hole of the finger. Then the insert is secured by the locking screw.

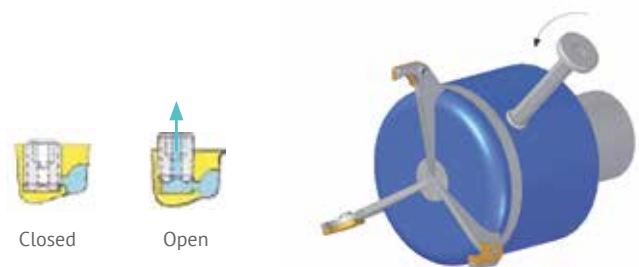


Programming Examples

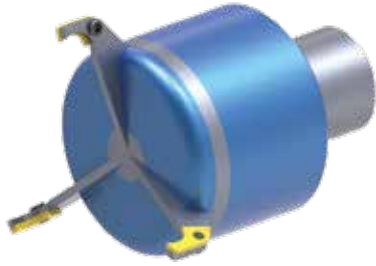
- Call the turret position with bar puller
- Moving the gripper in gripping position on the bar
- Coolant ON to clamp the bar
- Release chuck or collet
- Pulling out the bar to a specific z-extent with programmed feed rate
- Clamp chuck or collet
- Coolant OFF to release the bar
- Approach tool change point and retrieve the first tool

Valve Outlet when Lathes are equipped with a Check Valve

An adjustable valve is provided within the body of Grippex® serving machines with a check valve, which prohibits coolant from flowing back when turned off. If you want to speed up the release of the fingers, just loosen the screw some turns ccw for quicker release.



Reference Numbers



Grippex® Large



Grippex® Small

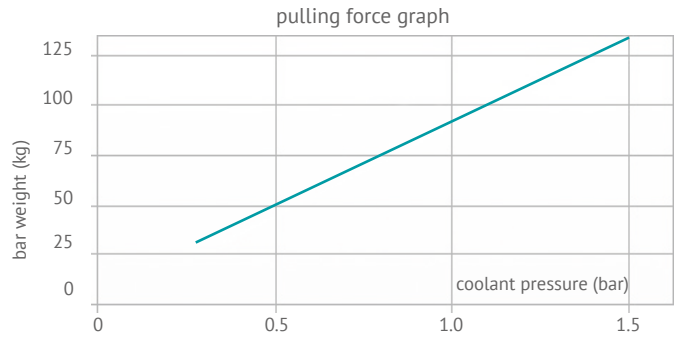
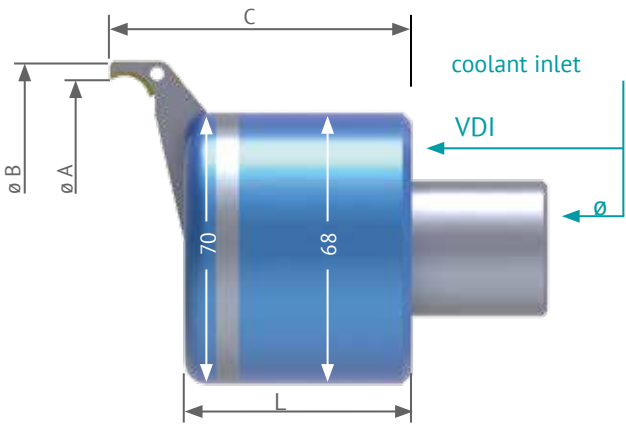


Grippex® Mini

ref. no.	Grippex® Large	capacity	examples: bar weight (steel)												
8 267 29 011	Grippex® Large with shank diameter 25	2 - 60	<table border="1"> <thead> <tr> <th>bar diameter</th> <th>bar length</th> <th>weight</th> </tr> </thead> <tbody> <tr> <td>ø 60 mm</td> <td>1000 mm</td> <td>approx. 22 kg</td> </tr> <tr> <td>ø 80 mm</td> <td>1000 mm</td> <td>approx. 40 kg</td> </tr> <tr> <td>ø 105 mm</td> <td>1000 mm</td> <td>approx. 68 kg</td> </tr> </tbody> </table>	bar diameter	bar length	weight	ø 60 mm	1000 mm	approx. 22 kg	ø 80 mm	1000 mm	approx. 40 kg	ø 105 mm	1000 mm	approx. 68 kg
bar diameter	bar length	weight													
ø 60 mm	1000 mm	approx. 22 kg													
ø 80 mm	1000 mm	approx. 40 kg													
ø 105 mm	1000 mm	approx. 68 kg													
8 267 29 013	Grippex® Large with shank diameter 25	3 - 80													
8 267 29 012	Grippex® Large with shank diameter 25	7 - 105													
8 267 39 003	Grippex® Large with shank diameter 32	2 - 60													
8 267 39 004	Grippex® Large with shank diameter 32	3 - 80													
8 267 39 005	Grippex® Large with shank diameter 32	7 - 105													
8 267 49 012	Grippex® Large with shank diameter 40	2 - 60													
8 267 49 013	Grippex® Large with shank diameter 40	3 - 80													
8 267 49 007	Grippex® Large with shank diameter 40	7 - 105													
8 267 29 014	Grippex® Large with VDI 30 shank	2 - 60													
8 267 29 015	Grippex® Large with VDI 30 shank	3 - 80													
8 267 29 016	Grippex® Large with VDI 30 shank	7 - 105													
8 267 49 010	Grippex® Large with VDI 40 shank	2 - 60													
8 267 49 009	Grippex® Large with VDI 40 shank	3 - 80													
8 267 49 011	Grippex® Large with VDI 40 shank	7 - 105													
ref. no.	Grippex® Small	capacity	bar weight (steel)												
8 267 19 005	Grippex® Small with shank diameter 20	2-52	<table border="1"> <thead> <tr> <th>bar diameter</th> <th>bar length</th> <th>weight</th> </tr> </thead> <tbody> <tr> <td>ø 52 mm</td> <td>1000 mm</td> <td>approx. 16.5 kg</td> </tr> </tbody> </table>	bar diameter	bar length	weight	ø 52 mm	1000 mm	approx. 16.5 kg						
bar diameter	bar length	weight													
ø 52 mm	1000 mm	approx. 16.5 kg													
8 267 29 018	Grippex® Small with shank diameter 25	2-52													
8 267 39 006	Grippex® Small with shank diameter 32	2-52													
8 267 19 004	Grippex® Small with VDI 20 shank	2-52													
8 267 29 020	Grippex® Small with VDI 30 shank	2-52													
ref. no.	Grippex® Mini	capacity	bar weight (steel)												
8 267 09 003	Grippex® Mini with shank diameter 16	0-38	<table border="1"> <thead> <tr> <th>bar diameter</th> <th>bar length</th> <th>weight</th> </tr> </thead> <tbody> <tr> <td>ø 38 mm</td> <td>1000 mm</td> <td>approx. 8.6 kg</td> </tr> <tr> <td>ø 40 mm</td> <td>1000 mm</td> <td>approx. 9.7 kg</td> </tr> </tbody> </table>	bar diameter	bar length	weight	ø 38 mm	1000 mm	approx. 8.6 kg	ø 40 mm	1000 mm	approx. 9.7 kg			
bar diameter	bar length	weight													
ø 38 mm	1000 mm	approx. 8.6 kg													
ø 40 mm	1000 mm	approx. 9.7 kg													
8 267 19 007	Grippex® Mini with shank diameter 20	0-38													
8 267 29 017	Grippex® Mini with shank diameter 25	0-38													
8 267 09 004	Grippex® Mini with VDI 16 shank	0-38													
8 267 19 006	Grippex® Mini with VDI 20 shank	0-38													

Grippex® Large

Specifications



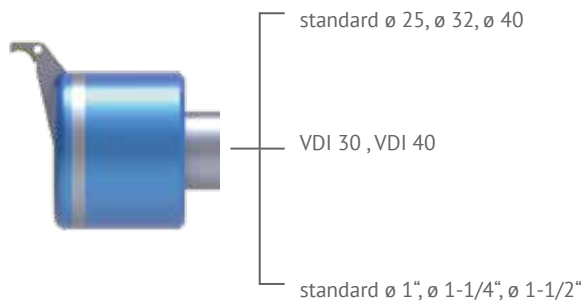
The graph shows the max. allowable weight of a mild steel bar to be pulled at a coefficient of friction valued < 0.2.

Grippex® Large withstands high pressure – 20 bar.

		L
standard shank	directly fitted on the back plate	71 mm
VDI 30	back plate VDI (L+11.80mm)	82.80 mm
VDI 40	back plate VDI (L+12.80mm)	83.80 mm

gripping range	Ø A	Ø B	C
2 - 60 mm	64 mm	83 mm	89 mm
3 - 80 mm	83 mm	102 mm	94 mm
7 - 105 mm (option)	110 mm	129 mm	108 mm

Select the Shank



	ref. no.	capacity
Ø 25	8 267 29 011	(2 - 60)
	8 267 29 013	(3 - 80)
	8 267 29 012	(7 - 105)
Ø 32	8 267 39 003	(2 - 60)
	8 267 39 004	(3 - 80)
	8 267 39 005	(7 - 105)
Ø 40	8 267 49 012	(2 - 60)
	8 267 49 013	(3 - 80)
	8 267 49 007	(7 - 105)
VDI 30	8 267 29 014	(2 - 60)
	8 267 29 015	(3 - 80)
	8 267 29 016	(7 - 105)
VDI 40	8 267 49 010	(2 - 60)
	8 267 49 009	(3 - 80)
	8 267 49 011	(7 - 105)

Spare Parts for Capacity



ref. no.	capacity
8 660 99 019*	(2 - 60)
8 660 99 020*	(3 - 80)
8 660 99 017*	(7 - 105)

*) Order set contains three gripping fingers

Inserts and Robot Jaws

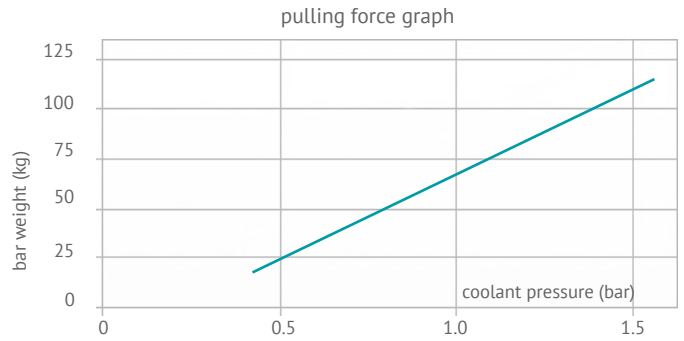
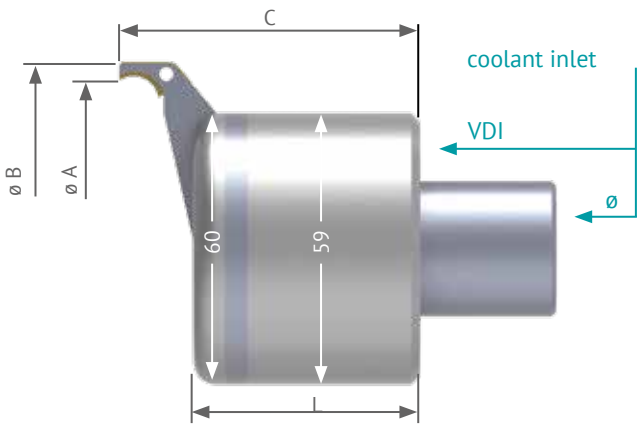


ref. -no.	description
8 660 99 018 ¹	inserts
8 660 99 022 ^{1,2}	robot jaws

¹) Order set contains three inserts
²) Suitable only for 8 660 99 020 and 8 660 99 017

Grippex® Small

Specifications



The graph shows the max. allowable weight of a mild steel bar to be pulled at a coefficient of friction valued < 0.2.
Grippex® Small withstands high pressure – 15 bar.

shank type	fitting	length (mm)
standard shank	directly fitted on the back plate	64 mm
VDI 20	directly fitted on the back plate	64 mm
VDI 30	back plate VDI (L+11.80mm)	75.80 mm

gripping range	Ø A	Ø B	C
2 - 52 mm	54 mm	74 mm	86 mm

Select the Shank

shank type	ref. no.	capacity
standard Ø 20, Ø 25, Ø 32 mm	Ø 20	8 267 19 005 (2 - 52)
	Ø 25	8 267 29 018 (2 - 52)
	Ø 32	8 267 39 006 (2 - 52)
VDI 20 and VDI 30	VDI 20	8 267 19 004 (2 - 52)
	VDI 30	8 267 29 020 (2 - 52)
standard Ø 1", Ø 1-1/4", Ø 1-1/2"		

Spare Parts for Capacity



2 - 52 mm

ref. no.	capacity
8 660 99 021*	(2 - 52)

*) Order set contains three gripping fingers

Inserts



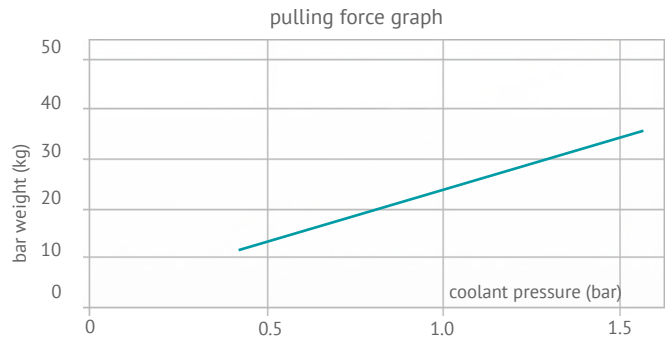
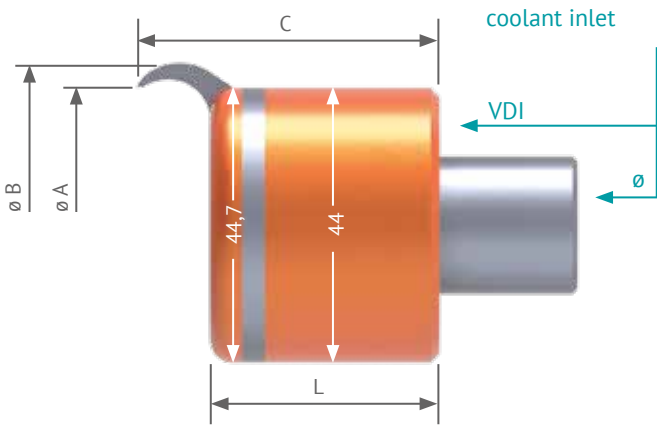
inserts

ref. no.	description
8 660 99 018*	inserts

*) Order set contains three inserts

Grippex® Mini

Specifications



The graph shows the max. allowable weight of a mild steel bar to be pulled at a coefficient of friction valued <math>< 0.2</math>. Grippex® Mini stands high pressure – 7 bar.

		L
standard shank	directly fitted on the back plate	49.50 mm
VDI 16	directly fitted on the back plate	49.50 mm
VDI 20	back plate VDI (L + 11.80 mm)	61.30 mm

gripping range	$\varnothing A$	$\varnothing B$	C
standard gripping fingers	38 mm	52 mm	61.5 mm
robot gripping fingers	38 mm	60 mm	70.5 mm

Select the Shank

	standard $\varnothing 16, \varnothing 20, \varnothing 25$ mm	VDI 16, VDI 20	standard $\varnothing 1"$	ref. no.	capacity
				$\varnothing 16$	8 267 09 003 (0 - 38)
				$\varnothing 20$	8 267 19 007 (0 - 38)
				$\varnothing 25$	8 267 29 017 (0 - 38)
				VDI 16	8 267 09 004 (0 - 38)
				VDI 20	8 267 19 006 (0 - 38)

Spare Parts for Capacity



0 - 38 mm standard finger

clamp directly at chuck, hardened to HRC-57



0 - 38 mm robot finger

ref. no.	capacity
8 660 99 024*	0 - 38 mm
8 660 99 026*	0 - 38 mm

*) Order set contains two gripping fingers

Inserts



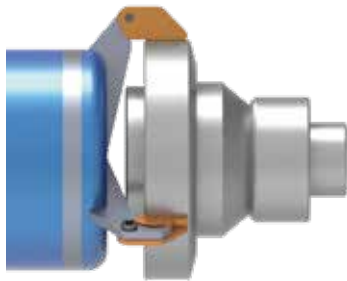
robot jaws

ref. no.	description
8 660 99 025*	robot jaws

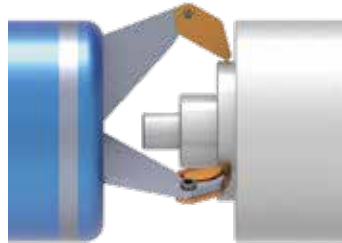
*) Order set contains two jaws

Robot Inserts for Grippex® Large

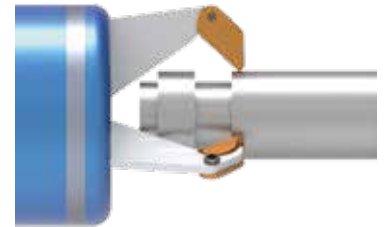
The robot inserts are suitable for all gripping fingers used on Grippex® Large and Grippex® Small



gripping a big diameter



gripping on a small surface



deep gripping



The inserts are made of medium hard steel. The inserts are optionally available in other materials than brass.

ref. no.	mounted on fingers	capacity \varnothing mm	gripping depth, L mm
8 660 99 023	8 660 99 021	4 - 48	20
	8 660 99 019	4 - 55	20
	8 660 99 020	4 - 75	20 (\varnothing 50 - \varnothing 75)*
			25 (\varnothing 30 - \varnothing 50)*
			30 (\varnothing 4 - \varnothing 30)*
	8 660 99 017	4 - 100	20 (\varnothing 50 - \varnothing 100)*
25 (\varnothing 25 - \varnothing 50)*			

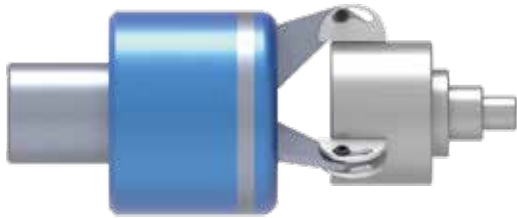
38 (\varnothing 4 - \varnothing 25)* diameter range

The design makes it possible to grip on a very small surface and also bridge untouchable surfaces.

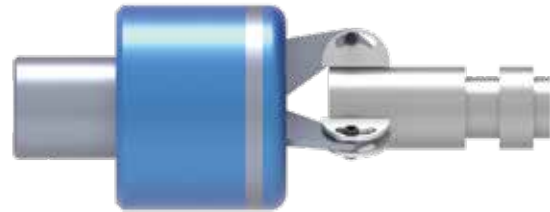
Applications: for example, for injury-free unloading at the main and sub spindles.

Robot Jaws for Grippex® Large

The robot jaws are suitable for Grippex® Large, fingers 8 660 99 020 and 8 660 99 017



gripping a big diameter



gripping deep on a small diameter



The jaws are made of plastic material.

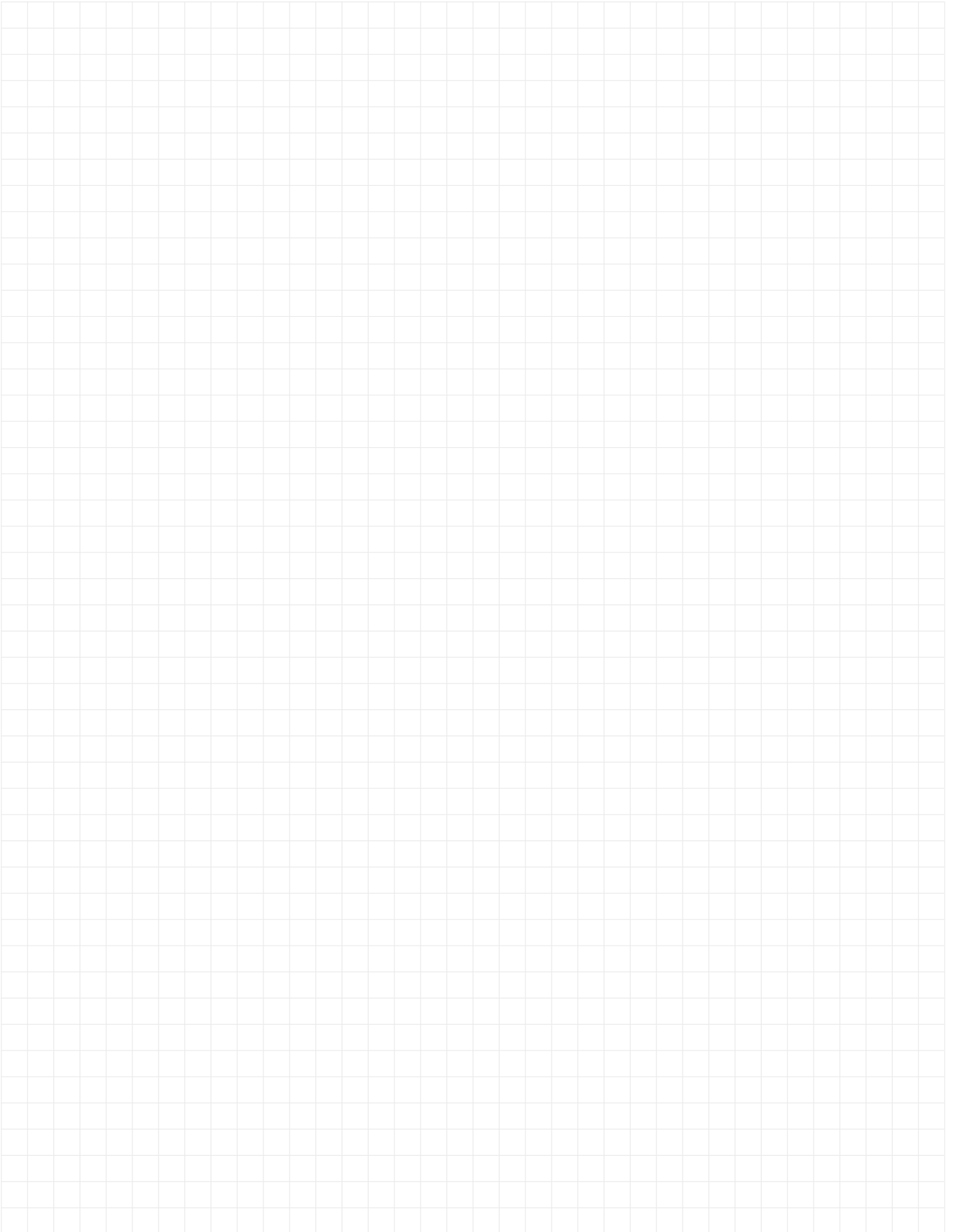
ref. no.	mounted on fingers	max. capacity \varnothing mm	gripping depth L mm
8 660 99 022	8 660 99 020	5 - 60	20 (\varnothing 40 - \varnothing 60)*
			25 (\varnothing 25 - \varnothing 40)*
			30 (\varnothing 5 - \varnothing 25)*
8 660 99 017	5 - 80	5 - 80	20 (\varnothing 50 - \varnothing 80)*
			25 (\varnothing 25 - \varnothing 50)*
			35 (\varnothing 15 - \varnothing 25)*
			40 (\varnothing 5 - \varnothing 15)*

* L - measure in the diameter range

These jaws are useful for gripping on long straight surfaces. For secure gripping, the point of attachment (holding screw) should be located within the gripping surface.

A low-cost robot function is achieved when using Grippex® Large as a quick pick-up unit linked between a simple loader/unloader and the lathe's chuck. It can also unload finished parts from a sub-spindle.

Gripping does not require any adjustment within the whole gripping range. This makes it an easy task to grip raw material as well as finished parts using the same finger set on Grippex® Large.





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