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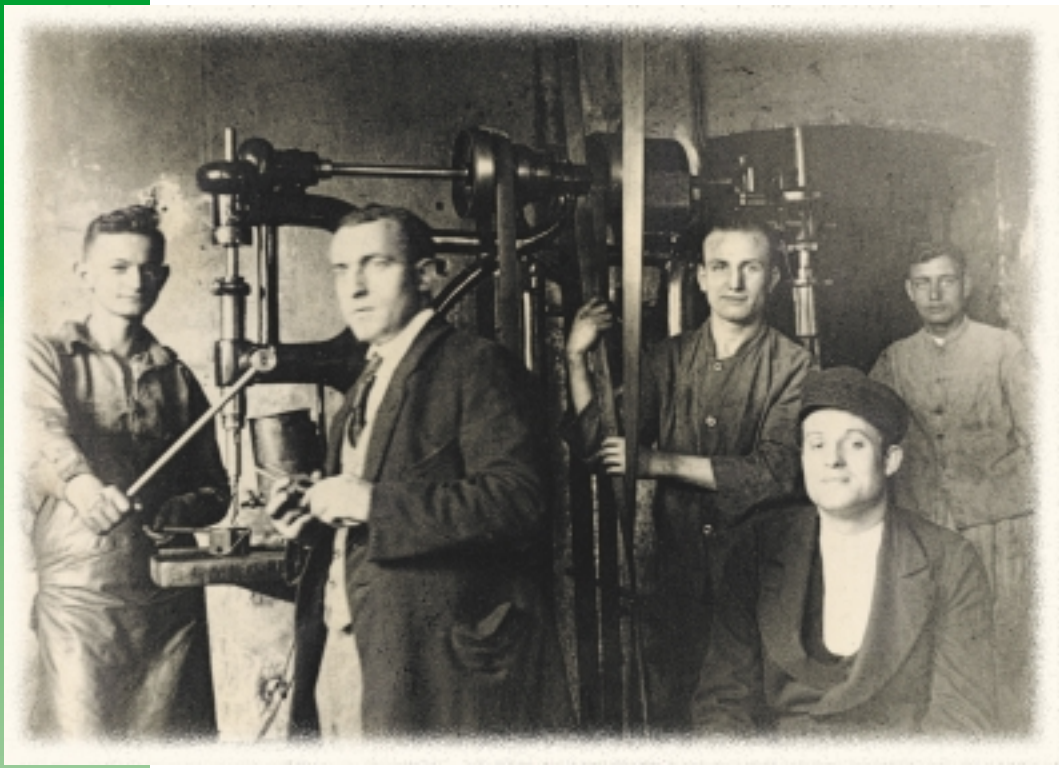
TURNUS Werkzeugfabrik
Eduard Gottfr. Ferne GmbH & Co. KG

GB-01

Quality made in Gemany



Founded in 1919 by Alfred Kleinbongartz and his brother-in-law Emil Kaiser, the Kleinbongartz & Kaiser Tool Factory has remained to this very day a family owned, unincorporated partnership.
Our brand name **KUKKO** is an acronym of the founders' initials.
KUKKO, as the inventor of a whole new category of tools, has consistently set new and higher, unsurpassed and exemplary standards of use and quality with its pullers, separators, internal extractors and numerous other pulling and extracting tools.

No wonder, then, that **KUKKO** has long since become a global synonym for push/pull devices.

Our second-to-none product array, which covers all conceivable industrial, artisanal and automotive-sector tasks and contexts, has evolved from a steady stream of innovation in the tradition of our company's founders.

Our certification according to DIN EN ISO 9001 (EN 29001/BS, part 1) and adoption of T.Q.M. document the quality mandate, commitment and guiding principles of a product policy geared to the optimization of customer benefits.

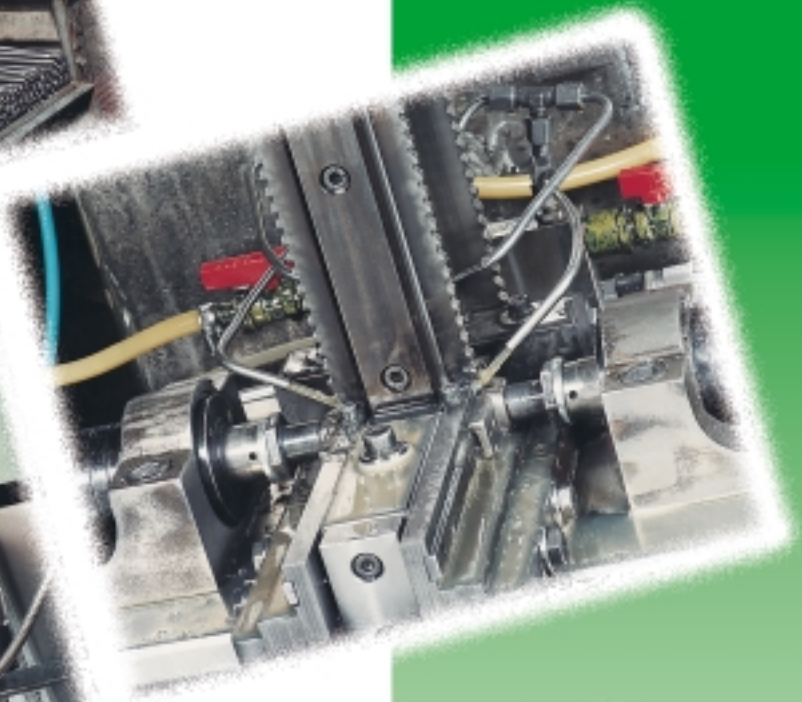
This catalogue, with its straightforward, comprehensive informational content, is intended to facilitate both your work and our fruitful cooperation.

KUKKO Tool Factory
Kleinbongartz & Kaiser

W. Kleinbongartz

KUKKO®

Quality made in Germany



TURNUS®

WINKELGREIF®

a KUKKO Partner Enterprise

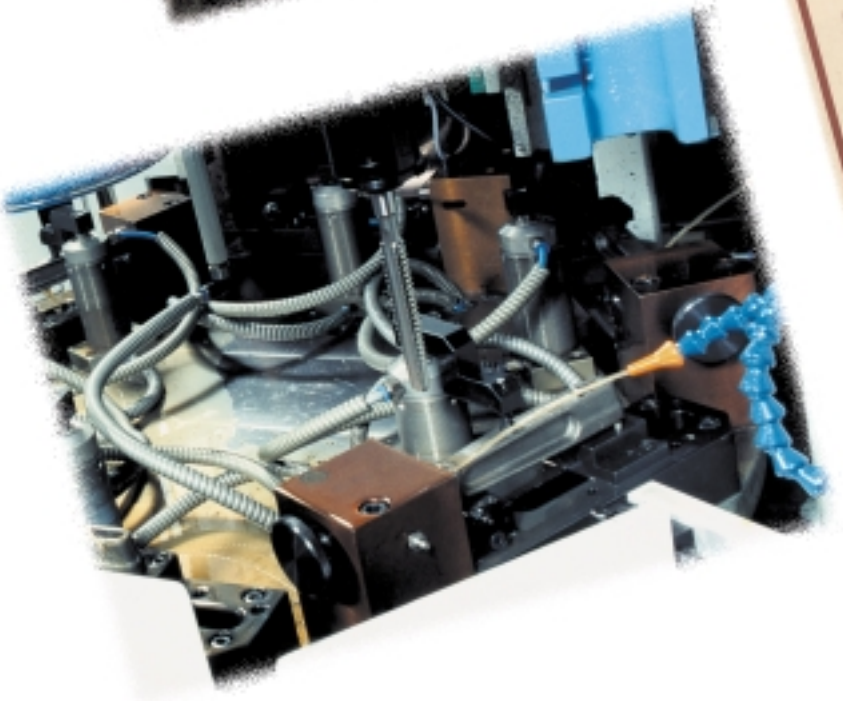
The **Eduard Gottfr. Ferne GmbH & Co. KG Tool Factory** was founded in 1853. As such, it is one of Germany's most richly heritaged toolmakers and the producer of the globally renowned TURNUS and WINKELGREIF clamping and cutting tools.

Among professional users in the trades, commerce and industry, TURNUS-brand **clamping tools** are a hallmark of quality and continuous, application-oriented progress.

TURNUS, the market leader for such traditional products as hand vises and such cutting-edge tools as the world's only all-steel screw clamps with anti-slip and spindle-lock devices, heavy-duty grip clamps and numerous other innovative products, offers users a supply program that satisfies all needs and demands. The TURNUS product array is included in this catalogue, beginning on page 114.

Then, starting on page 157, you'll find a broad range of Winkelgreif cutting tools, which have been known for decades now for their high cutting capacities, perfect convenience of use, long service lives and quality of detail execution.

The full line of Winkelgreif tools, including standard tin snips in high-grade and stainless steel, compound leverage tin snips with stainless-steel and tungsten-carbide cutting edges, electrician's shears and cable cutters, multi-purpose cutters and a multiplicity of other ergonomically engineered industrial shears, meets any requirements a professional user could pose.



KUKKO®

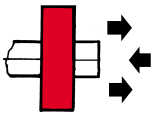
Quality made in Gemany

TURNUS®

WINKELGREIF®

Choosing the right puller for the right job

Which type of puller do I need? Which combination works best?



. . . for pulling gear wheels, ball bearings, V-belt pulleys and the like off of shafts and axles.

Sliding-arm pullers with two arms or three.

With deference to superior load distribution, three-arm pullers should - space permitting - always be given preference.

Range of choices:

a) Sliding-arm pullers, belonging to type series 20, 30 or 11.

b) Pullers with self-centering, self-aligning arms, belonging to type series 43, 44, 45, 482, 483 or to either 844 or 845 from the „800“-system series.

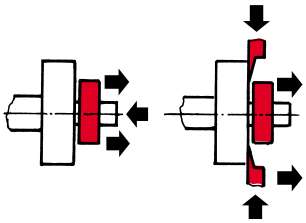
c) Pullers with preselectable spread, belonging to type series 12.

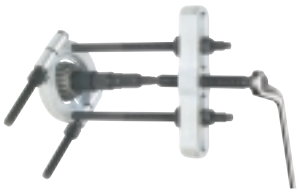
d) Pullers with self-centering spread adjuster, belonging to type series 112 or 113.

e) Swivel-arm pullers, belonging to type series 41, 42, 46, 47, 201, 202, 203, 205, 206 or 207.

f) Pullers with side clamp, belonging to type series 204 or 210.

g) Pullers with slide hammer, belonging to types series 220.





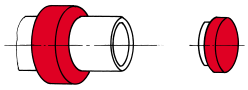
. . . for pulling ball bearings, roller bearings, sleeves/bushes and other tight-fitting elements.

Separators and separator pullers.

Range of choices:

a) Separators and pulling tools, belonging to type series 15, 17 or 18.

b) Separator pullers, belonging to types series 14, 204-0 or 210.

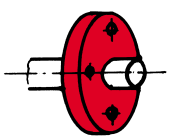


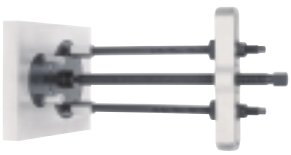
. . . for pulling items mounted on hollow shafts.

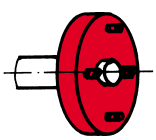
The choice of puller in this case is analogue to the above, but a step plate adapter must be inserted to help support the puller’s forcing screw on the hollow shaft.

Range of choices:

Sets of step plate adapters, belonging to type series Y-18-17, Y-19-17 or Y-20-17.







. . . for pulling items with tapholes.

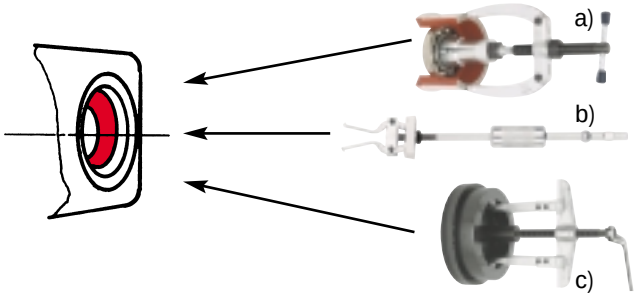
Pullers with threaded adapter.

Range of choices:

a) Pulling tools with threaded adapter, belonging to types series 18 or 18-AS.

b) Pullers with slide hammer, belonging to type series 230.

PULLER ABC



. . . for pulling ball bearings, outer races of ball bearings, and bushes/liners out of boreholes.

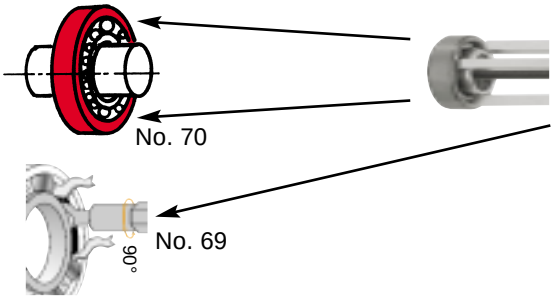
Internal extractors.

Range of choices:

a) Internal extractors with counterstays, belonging to type series 21, 22 or 16.

b) Internal extractors with slide hammer, belonging to type series 221 or 224.

c) Pullers, belonging to type series 20 or 30, with arms reversed.



. . . for pulling and extracting ball bearings out of their housings.

Ball bearing extractors,
belonging to type series 69 and 70.

. . . for pulling shafts or axles out of bearings.

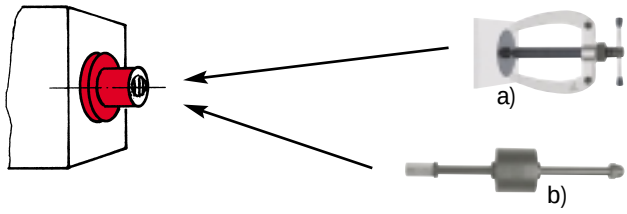
Shafts are designed with a concentric shaft-protecting tapped bore.

Pulling tool with threaded adapter.

Range of choices:

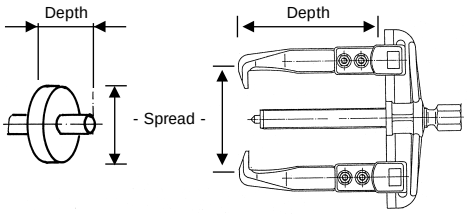
a) Counterstay with threaded adapter, belonging to type series 22 or 22-AS.

b) Puller with slide hammer and threaded adapter, belonging to type series 223.

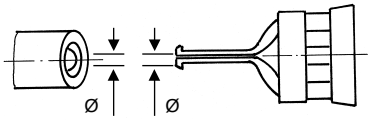


Once the required type of tool has been determined, it is easy to pick the most suitable model from among the numerous type series listed in the catalogue. To pinpoint the size of tool you need, run through the spread and depth columns of the corresponding tables, and compare the listed dimensions with those involved in the job at hand.

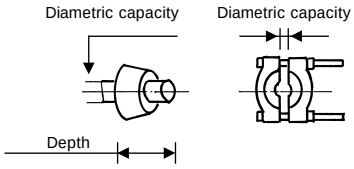
Outside pulling



Inside pulling



Separating



Normally, you can trust the selected model to handle the work you have in store for it. However, just to be absolutely sure, always choose the larger of any models with overlapping job-dimension ranges.

The technical appendix of this catalogue, which you'll find on pages 94 -101, offers detailed dimensional and performance data for all the different models, in addition to safety instructions and useful tips for working with pulling tools.

Then, on pages 58 and 59, you'll find the appropriate driving tools for controlled application of force.

Illustrations	indicate the present status. The designs may, however, be altered without special notice, e.g., in the interest of technical progress.	**Performance**	data are based on the maximum rating. The load to be applied must be adjusted during each application to the actual conditions, the safety requirements and the operating instructions (as-intended use).
Errata	and misprints excepted.	**Dimensional**	details are only approximate and therefore given subject to pertinent modifications and technical progress.
Weights	are quoted as averages and therefore not binding.	**Quality assurance**	by means of a Quality Management System certified according to DIN EN ISO 9001.
Information	on working with push/pull devices is provided on page 89, 92, 93.		

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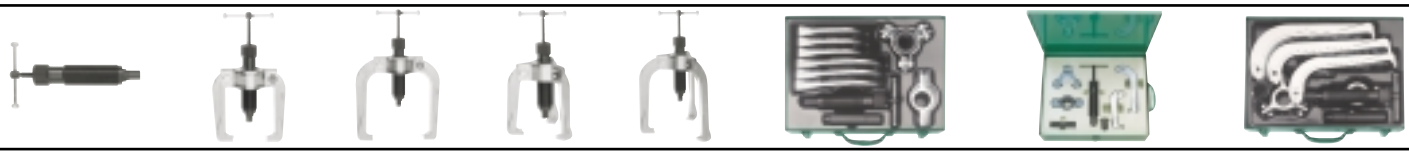

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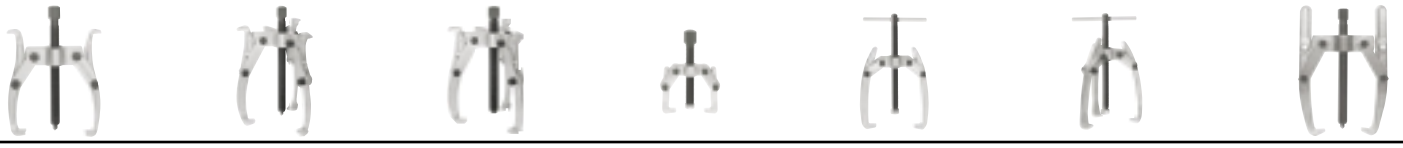

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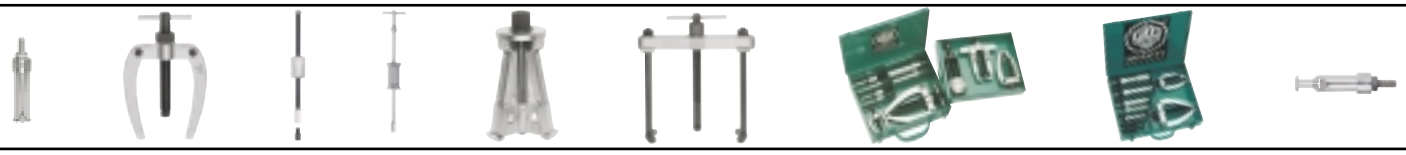

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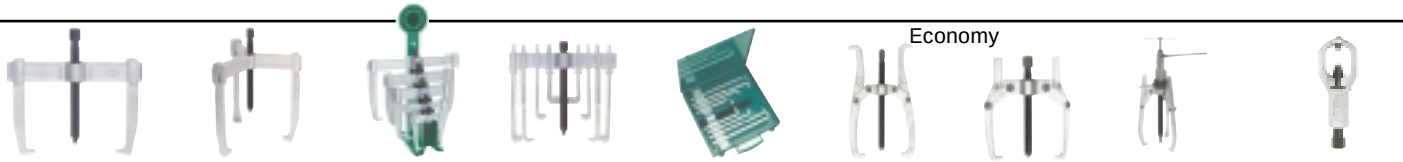
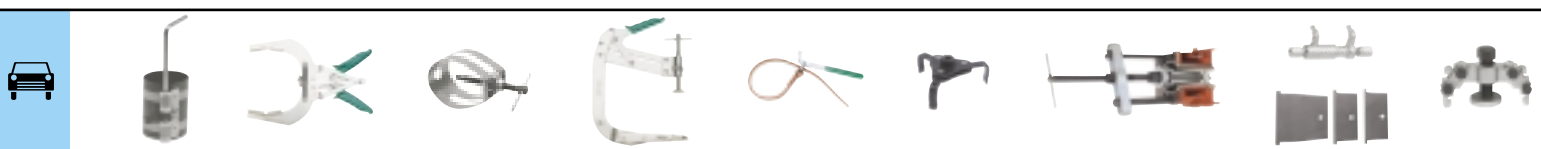
Economy





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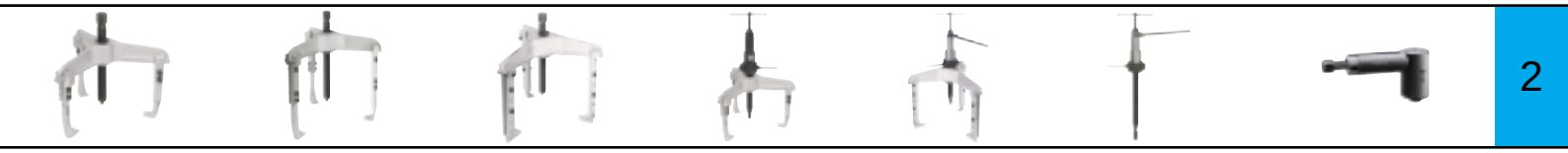
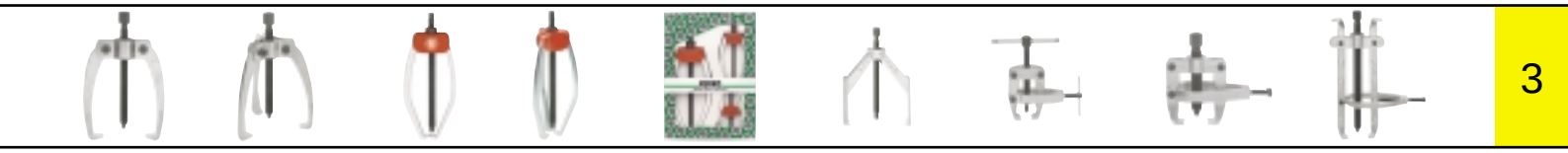
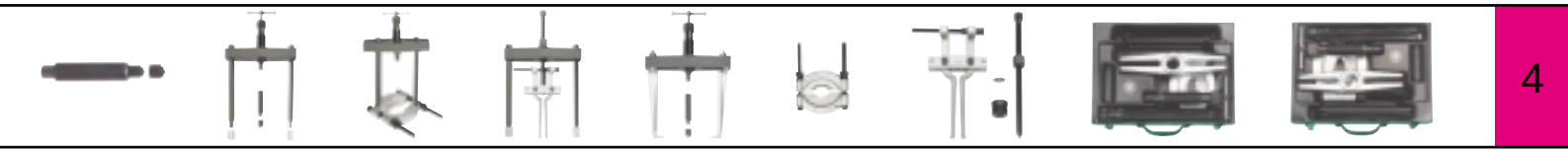
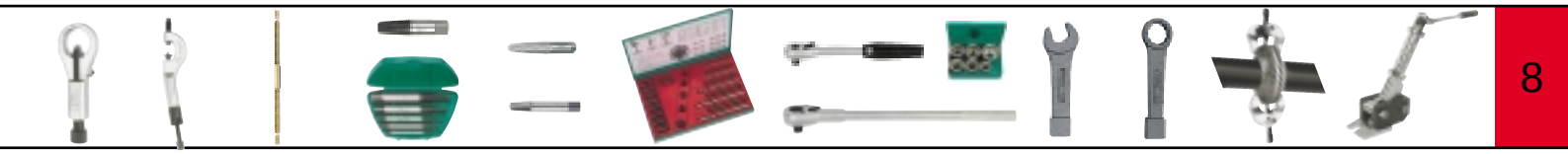
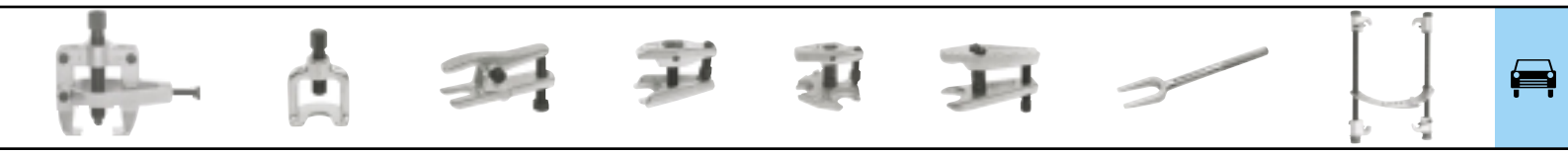
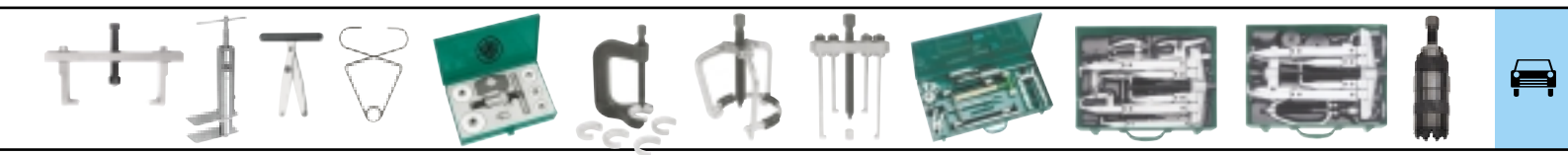




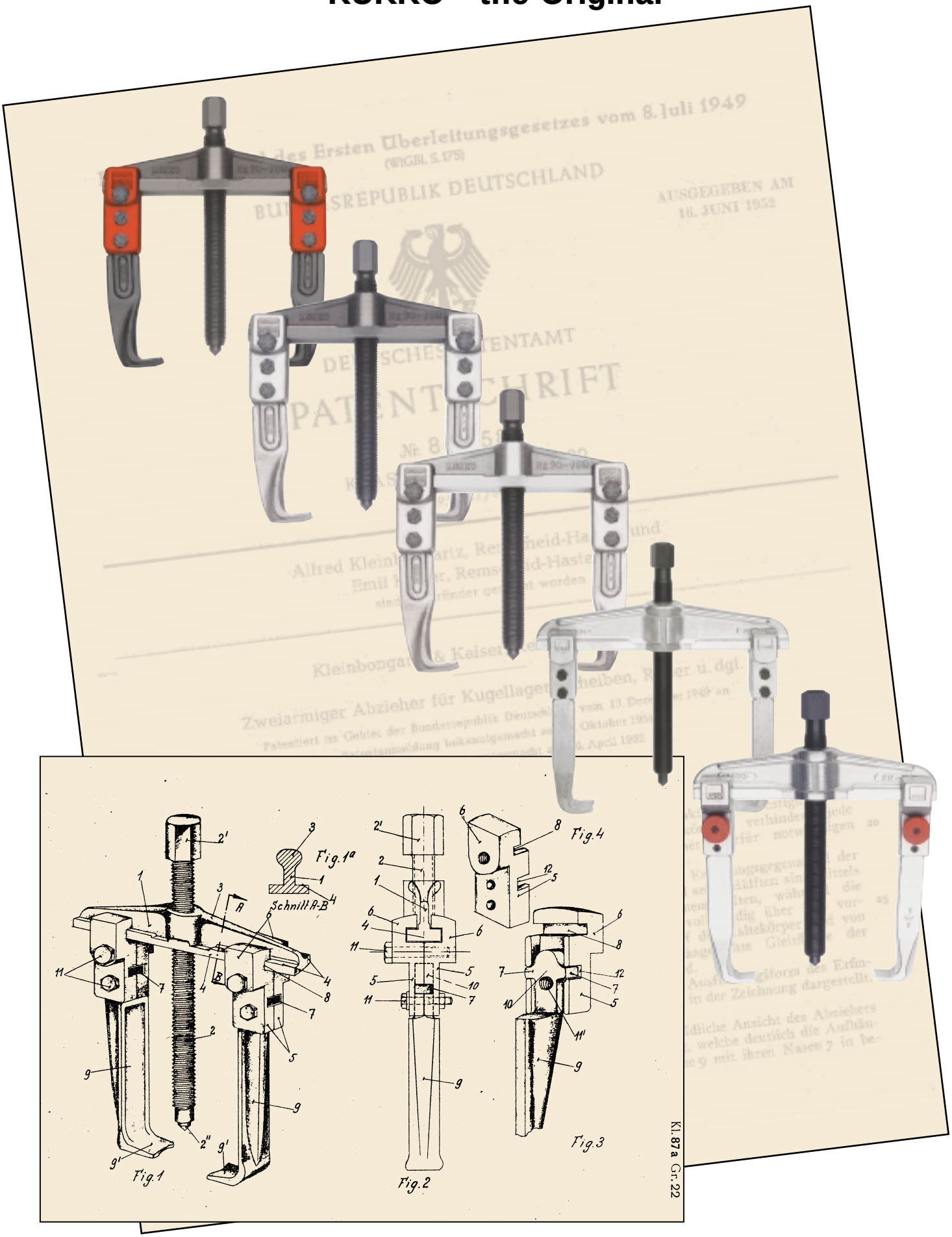




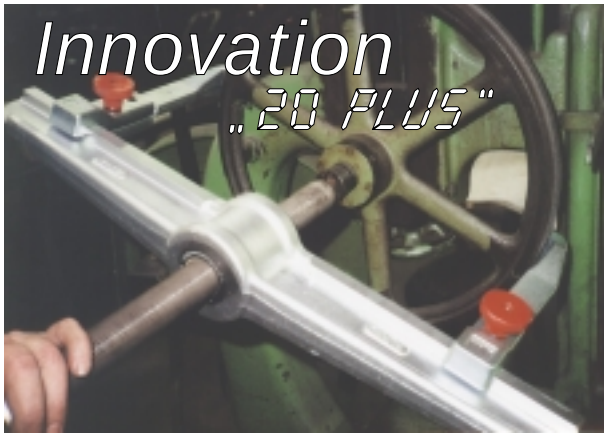




KUKKO - the Original

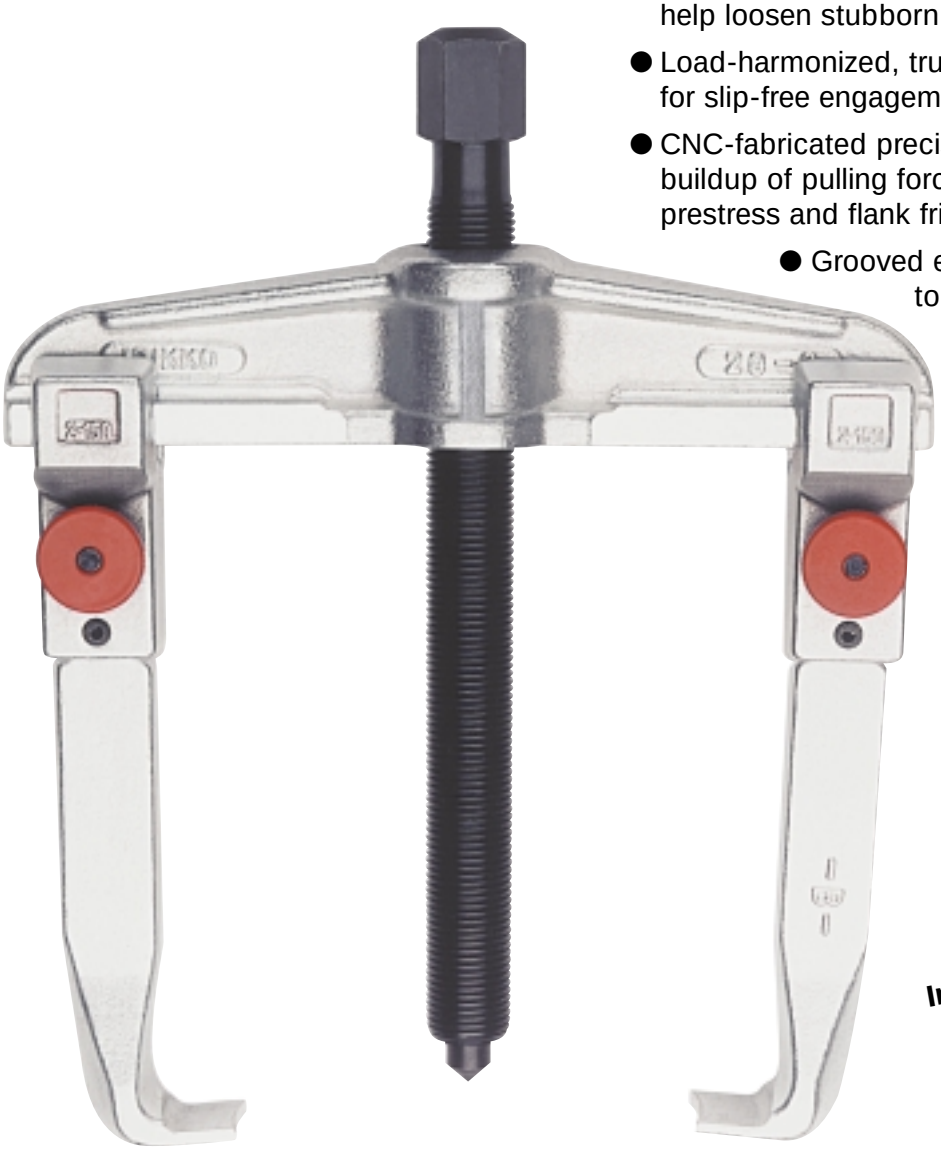


KUKKO - the Original



Engineered to maturity in every detail, neatly drop forged, precision machined on state-of-the-art production equipment, carefully hardened and tempered, expertly assembled, and load-tested - in other words, KUKKO quality made in Germany.

- Ribbed **puller head sections**, carefully calculated for high rigidity, with smooth-milled guideways.
- Specially strengthened female threads with smooth, hard-wearing flanks for smooth running and good transmission of forces.
- Strong **arms** made of oil-hardened chrome vanadium steel, with profile-milled claws featuring a special gripping geometry for confined spaces, plus appropriate radii for shafts and axles.
- Heat-treated and specially coated **forcing screws/rams** with tribologically superior threads.
- Forcing screw heads with round striking crown to enable pounding the prestressed puller with a hammer to help loosen stubborn items.
- Load-harmonized, true-to-tolerance opening widths for slip-free engagement of the driving tool.
- CNC-fabricated precision fine-pitch threads for easy buildup of pulling force, even in the presence of high prestress and flank friction.
- Grooved end threads for avoiding damage to the female thread, if the full thread length is needed.
- Bearing-mounted, freely rotating center points for protecting the shaft against damage caused by application of the pulling force.



In other words, KUKKO quality - made in Germany -

Sliding-arm Universal Pullers with Constantly Parallel Claws

This original KUKKO design has proven itself in decades of rough & tumble service all over the world.

Advantage: constantly parallel claws in any position, so that only the contact faces actually touch the part to be pulled.

Sturdy construction, high performance, handy shape, form-cut feet for use in confined spaces.

Universally applicable, with interchangeable claws for any required depth.

For outside and inside pulling.

Type 20 with standard-length claws

Two-arm universal pullers, type series 20

Mechanical pullers with standard-type, standard-length claws

Art. no.	mm	"	mm	"	kg	4021176		mm
20-1	90	3 5/8	100	4	1.10	009433	614 135	17
20-10	120	5	100	4	1.20	009921	614 135	17
20-2	160	6	150	6	2.80	009501	621 210	22
20-20	200	8	150	6	3.10	010088	621 210	22
20-3	250	10	200	8	7.00	009686	626 280	27
20-30	350	14	200	8	8.00	010163	626 280	27
20-4	520	21	200	8	13.40	009761	11-3-0	36
20-40	650	26	300	12	14.80	411861	11-3-0	36

Type 20 with off-length claws

Two-arm universal pullers, type series 20

Mechanical pullers with standard-type, off-length claws

Art. no.	mm	"	mm	"	kg	4021176		mm
20-1-2	90	3 5/8	200	8	1.60	466311	614 135	17
20-10-2	120	5	200	8	1.70	466496		
20-2-3	160	6	300	12	3.60	466564	621 210	17
20-20-3	200	8	300	12	3.90	466649		
20-3-3	250	10	300	12	8.10	466724	626 280	27
20-3-4	250	10	400	16	9.20	467066		
20-3-5	250	10	500	20	10.20	467301		
20-30-3	350	14	300	12	9.10	466809		
20-30-4	350	14	400	16	10.20	467141		
20-30-5	350	14	500	20	11.20	467486		
20-4-3	520	21	300	12	14.50	466984	11-3-0	36
20-4-4	520	21	400	16	15.60	467226		
20-4-5	520	21	500	20	16.60	467554		
20-40-4	650	26	400	16	17.00	730641		
20-40-5	650	26	500	20	18.00	731976		

Standard-type claws

for pullers belonging to type series 20

Art. no.	mm	"	kg	4021176	Qty.	For puller nos.
1- 90-P	100	4	0.56	001338	2	20-1, -10
2-150-P	150	6	1.20	002403	2	20-2, -20
3-200-P	200	8	3.10	003233	2	20-3, -30, -4, -40

These claws also fit three-arm pullers belonging to type series 30.

Extra-long claws

for pullers belonging to type series 20

Art. no.	mm	"	kg	4021176	Qty.	For puller nos.
1-190-P	200	8	1.00	001666	2	20-1, -10
1-250-P	250	10	1.25	001901	2	20-1, -10
2-300-P	300	12	2.15	002731	2	20-2, -20
3-300-P	300	12	4.40	003561	2	20-3, -30, -4, -40
3-400-P	400	16	5.30	003806	2	20-3, -30, -4, -40
3-500-P	500	20	8.50	004148	2	20-3, -30, -4, -40

These claws also fit three-arm pullers belonging to type series 30.

Sliding-arm Pullers with Constantly Parallel Claws

Two-arm universal pullers, type series 20-H

Sizes -3 and -30, with 10-ton hydraulic ram and standard-length claws

The nominal capacity of the hydraulic ram is reached at a torque of 30 Nm. (See page 26 for operation.)

Art. no.	mm	"	mm	"	kg	4021176	Hydr..	With extension	Capacity, t
20-3-H	250	10	200	8	7.70	786839	800	800-150	10
20-30-H	350	14	200	8	8.70	786914	800	800-150	10

Two-arm universal pullers, type series 20-AV

Size -4, size -40 and size 20-5 with adjustable-length claws

Art. no.	mm	"	mm	"	kg	4021176		mm
20-4-AV	520	21	300-500	12-20	18.70	706233	11-3-0	36
20-40-AV	650	26	300-500	12-20	20.00	732058	11-3-0	36
20-5	750	30	400-700	16-27	44.30	009846	637 600	41

Two-arm universal pullers, type series 20-H

Size 4, size 40 and size 20-5 with hydraulic ram and adjustable-length claws

High-compressive force is of major advantage for quick, effortless pulling of particularly tight-fitting items.
(Operation as described on page 18.)

Art. no.	mm	"	mm	"	kg	4021176	Hydr.	Capacity t
20-4-H	520	21	300-500	12-20	26.30	227981	8-1-B	15
20-40-H	650	26	300-500	12-20	27.70	732218	8-1-B	15
20-5-H	750	30	400-700	16-28	49.80	228063	8-2-M	20

Hydraulic rams for pullers belonging to type series 20

High-compressive force is of major advantage for quick, effortless pulling of particularly tight-fitting items.
Simply replace the mechanical screw with a hydraulic ram.
The nominal capacity is reached at a torque of 45 Nm (8-1) or 30 Nm (8-2) and must not be exceeded.

(Operation as described on page 18.)

Art. no.	Suitable for nos.	Capacity t	Stroke mm	kg	4021176
8-1-B	20-4 + 20-40	15	10	6.80	034596
8-2-M	20-5	20	10	10.00	034916

Adjustable-length puller arms

A single pair of these claws, with their adjustable lengths, suffices for various different reaches.

Art. no.	mm	"	kg	4021176	Qty.	For puller nos.
4-SP-P	300-500 adjustable	12-20	8.50	004636	2	20-3, -30, -4, -40
5-SP-P	400-700 adjustable	16-28	20.40	004971	2	20-5

1

Sliding-arm Pullers with Constantly Parallel Claws

Sales display and workshop stand

This practical stand facilitates the sales-counter presentation and/or orderly storage of your most frequently-used two-arm pullers. Two mounting holes in the back enable wall mounting, e.g., on a perforated wall panel.

Art. no.	incl. 1 ea. puller nos.					kg	4021176
20-ST	20-1	20-10	20-2	20-20	20-3	16.50	010248

When ordering a complete stand and puller set no. 20-ST, you only pay for the pullers, the stand is free.

Two-arm universal pullers, type series 20 PLUS quick-adjusting

with knurled knobs for quick loosening and adjustment of puller arms without need of a wrench

Art. no.	mm	"	mm	"	kg	4021176		mm
20-1+	90	$3^5/_8$	100	4	1.10	644771	614 135	17
20-10+	120	5	100	4	1.20	644856	614 135	17
20-2+	160	6	150	6	2.80	644931	621 210	22
20-20+	200	8	150	6	3.10	645013	621 210	22
20-3+	250	10	200	8	7.00	645198	626 280	27
20-30+	350	14	200	8	8.00	645273	626 280	27

Sales display and workshop stand

This practical stand facilitates the sales-counter presentation and/or orderly storage of your most frequently-used two-arm pullers. Two mounting holes in the back enable wall mounting, e.g., on a perforated wall panel.

Art. no.	incl. 1 ea. puller nos.					kg	4021176
20-ST+	20-1+	20-10+	20-2+	20-20+	20-3+	16.50	668944

When ordering a complete stand and puller set no. 20-ST+, you only pay for the pullers, the stand is free.

Two-arm universal pullers, type series 20 PLUS-S quick-adjusting, with puller arms designed for confined spaces

with knurled knobs for quick loosening and adjustment of puller arms without need of a wrench

Art. no.	mm	"	mm	"	kg	4021176		mm
20-1+S	90	$3^5/_8$	100	4	1.10	756221	614 137	13
20-10+S	120	5	100	4	1.20	756306	614 137	13
20-2+S	160	6	150	6	2.80	756481	621 211	17
20-20+S	200	8	150	6	3.10	756559	621 211	17
20-3+S	250	10	200	8	7.00	756634	626 281	19
20-30+S	350	14	200	8	8.00	756719	626 281	19

Sliding-arm Pullers with Constantly Parallel Claws

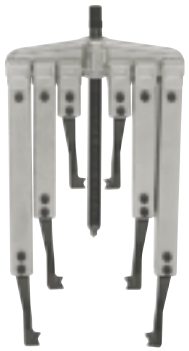
Two-arm universal pullers, type series 20-S

with slender puller arms for confined spaces, e.g., for pulling gear wheels, bearings, pinions and detents

Art. no.	mm	"	mm	"	kg	4021176		mm
20-1-S	90	3 5/8	100	4	1.00	757396	614 137	13
20-10-S	120	5	100	4	1.10	757471	614 137	13
20-2-S	160	6	150	6	2.70	727368	621 211	17
20-20-S	200	8	150	6	3.00	727443	621 211	17
20-3-S	250	10	200	8	6.90	727511	626 281	19
20-30-S	350	14	200	8	7.90	727696	626 281	19

Puller arms for confined spaces

Art. no.	mm	"	kg	4021176	Qty.	For puller nos.
1- 91-P	100	4	0.50	434716	2	20-1, -10
1-191-P	200	8	0.90	461286	2	20-1, -10
1-251-P	250	10	1.20	461446	2	20-1, -10
2-151-P	150	6	1.36	702921	2	20-2, -20
2-301-P	300	12	2.00	703188	2	20-2, -20
3-201-P	200	8	3.52	726521	2	20-3, -30
3-301-P	300	12	4.60	726781	2	20-3, -30
3-401-P	400	16	5.60	726941	2	20-3, -30
3-501-P	500	20	6.70	727108	2	20-3, -30



Two-arm universal pullers, type series 20-SP

with slender puller arms for confined spaces, e.g., for pulling gear wheels, bearings, pinions and detents from various depths

Art. no.	mm	"	mm	"	kg	4021176		mm
20-10SP	120	5	100/200/250	4/8/10	3.40	461514	614 137	13
20-20SP	200	8	150/300	6/12	5.10	701856	621 211	17
20-30SP	350	14	200/300/400	8/12/16	19.10	701931	626 281	19

Set of two- and three-arm pullers in a tool box

with puller arms for confined spaces, for several different depths

Art. no.	Contents: parts for puller nos.	mm	mm	kg	4021176		mm
K-2030S	20-10SP + 30-10SP	120	100/200/250	8.50	776021	614 137	13

Sliding-arm Pullers with Constantly Parallel Claws

N

„QUICKFIX“ two-arm quick-action pullers

with reversible claws for inside and outside pulling

To mount the puller on the workpiece, simply slide the puller's pressure screw forward and lock it in the desired position. No more time-consuming in-turning and out-turning on long threads.

To lock the claws in position, hand-turn the easy-running knurled nut. No more wrench-tightening and -loosening of locking screws.

N

Two-arm universal pullers, type series 20 Q with quick-acting spindle assembly

Art. no.	mm	"	mm	"	kg	4021176		mm
20-10-Q	120	5	100	4	1.25	752346	612 165	13
20-20-Q	200	8	150	6	2.86	752421	615 240	17
20-3-Q	250	10	200	8	7.60	752599	622 320	19

N

Two-arm universal pullers, type series 20 QS with quick-acting spindle assembly

and claws for use in confined spaces

Art. no.	mm	"	mm	"	kg	4021176		mm
20-10-QS	120	5	100	4	1.32	752674	612 165	13
20-20-QS	200	8	150	6	2.95	752759	615 240	17
20-3-QS	250	10	200	8	7.80	752834	622 320	19

Auxiliary hydraulic rams

Highly efficient. Minimal space requirement.

These rams make a first-class auxiliary tool for boosting the working force of mechanical pullers applied to particularly stubborn components.

(See also type nos. 9-1 and 9-2 on page 19).

Sliding-arm Pullers with Constantly Parallel Claws

UNIVERSAL puller set on perforated toolboard, 30-20-T

This set comprises basic equipment for two-arm and three-arm universal pullers, which are in constant use in any workshop.

This set of pullers comes on a 780 x 480-mm perforated wall panel for space-saving storage and ready availability. A wide variety of combinations permits the use of the right tool for the right job.

The set includes parts for all pullers illustrated below.

Art. no.	Description	kg	
30-20-T	Universal puller set on perforated toolboard	17.50	281266

Outside pulling

2-arm

3-arm

spreads: 0-200 mm
max. reach: 300 mm

Inside pulling

2-arm

3-arm

for parts with bore diameters of 100 - 280 mm
max. reach: 300 mm

Separation pulling

for parts with bore diameters up to: 115 mm
max. depth: 300 mm

UNIVERSAL puller set in metal case

Art. no.	Description	kg	
K-20-15	Pullers and separator set in metal case	16.30	367311

Set contents:

Art. no.				
20-1	2-arm puller	⟷ 90 mm	¦ 100 mm	8
1-190-P	extra-long arms		¦ 200 mm	8
20-2	2-arm puller	⟷ 160 mm	¦ 150 mm	8
2-300-P	extra-long arms		¦ 300 mm	8
15-2	separator	Ø 115 mm		44
9-2	auxiliary hydraulic ram	150 kN	(15 Ton.)	19

Sliding-arm Pullers with Constantly Parallel Claws

Three-arm puller no. 30-3 with auxiliary hydraulic press no. 9-1

Three-arm universal pullers, type series 30

Universally applicable, **with interchangeable** arms for any required reach.

Serve both as outside and inside pullers.

Three-arm pullers, with their uniform load distribution, guarantee concentric pulling and a good hold on the part to be pulled.

Three-arm universal pullers, type series 30 with standard-type, standard-length arms

Art. no.	mm	"	mm	"	kg	4021176		mm
30-1	90	3 5/8	100	4	1.30	013393	614 135	17
30-10	120	5	100	4	1.60	013621	614 135	17
30-2	160	6	150	6	3.50	013478	621 210	22
30-20	200	8	150	6	3.90	013706	621 210	22
30-3	250	10	200	8	9.00	013546	626 280	27

For larger models, type series 11, see page 16.

Three-arm universal pullers, type series 30 with standard-type, off-length arms

Art. no.	mm	"	mm	"	kg	4021176		mm
30-1-2	90	3 5/8	200	8	2.10	730726	614 135	17
30-10-2	120	5	200	8	2.20	730801	614 135	17
30-2-3	160	6	300	12	4.70	730986	621 210	22
30-20-3	200	8	300	12	4.80	731068	621 210	22
30-3-3	250	10	300	12	10.30	731143	626 280	27
30-3-4	250	10	400	16	11.80	731228	626 280	27
30-3-5	250	10	500	20	11.30	731303	626 280	27

Standard-length arms for pullers belonging to types series 30

Art. no.	Qty.	mm	"	kg	4021176	For puller nos.
1-90-S	3	100	4	0.80	001413	30-1, -10
2-150-S	3	150	6	1.80	002571	30-2, -20
3-200-S	3	200	8	4.70	003318	30-3, 11-0, -1, -2

The above arms also fit two-arm pullers belonging to type series 20.

Off-length arms for pullers belonging to types series 30

Art. no.	Qty.	mm	"	kg	4021176	For puller nos.
1-190-S	3	200	8	1.20	001741	30-1, -10
1-250-S	3	250	10	1.65	002083	30-1, -10
2-300-S	3	300	12	3.20	002816	30-2, -20
3-300-S	3	300	12	6.50	003646	30-3, 11-0, -1, -2
3-400-S	3	400	16	7.70	003981	30-3, 11-0, -1, -2
3-500-S	3	500	20	11.70	004223	30-3, 11-0, -1, -2

The above arms also fit two-arm pullers belonging to type series 20.

Sliding-arm Pullers with Constantly Parallel Claws

Three-arm universal pullers, type series 30-S with puller arms for confined spaces

Art. no.	mm	"	mm	"	kg	4021176		mm
30-1-S	90	3⁵/₈	100	4	1.40	727771	614 137	13
30-10-S	120	5	100	4	1.50	728198	614 137	13
30-2-S	160	6	150	6	3.50	727856	621 211	17
30-20-S	200	8	150	6	3.70	727931	621 211	17
30-3-S	250	10	200	8	9.40	728013	626 281	19

Three-arm universal pullers, type series 30-SP Sets with puller arms for confined spaces, with several different depths

Art. no.	mm	"	mm	"	kg	4021176		mm
30-10-SP	120	5	100/200/250	4/8/10	4.80	463839	614 137	13
30-20-SP	200	8	150/300	6/12	6.80	728273	621 211	17
30-3-SP	250	10	200/300/400	8/12/16	24.70	728358	626 281	19

Puller arms for confined spaces

Art. no.	mm	"	kg	4021176	Qty.	For puller nos.
1- 91-S	100	4	0.75	497834	3	30-1, -10
1-191-S	200	8	1.35	497919	3	30-1, -10
1-251-S	250	10	1.80	498091	3	30-1, -10
2-151-S	150	6	2.04	728686	3	30-2, -20
2-301-S	300	12	3.06	728769	3	30-2, -20
3-201-S	200	8	5.28	728846	3	30-3, 11-0
3-301-S	300	12	6.90	728921	3	30-3, 11-0
3-401-S	400	16	8.40	729003	3	30-3, 11-0, -1
3-501-S	500	20	9.96	729188	3	30-3, 11-0, -2

Three-arm universal pullers, type series 30 PLUS quick-adjusting

with knurled knobs for quick loosening and adjustment of puller arms without need of a wrench

Art. no.	mm	"	mm	"	kg	4021176		mm
30-1+	90	3⁵/₈	100	4	1.40	731488	614 135	17
30-10+	120	5	100	4	1.50	731556	614 135	17
30-2+	160	6	150	6	3.60	731631	621 210	22
30-20+	200	8	150	6	3.70	731716	621 210	22
30-3+	250	10	200	8	8.80	731891	626 280	27

Three-arm universal pullers, type series 30 PLUS-S quick-adjusting, with puller arms for confined spaces

Art. no.	mm	"	mm	"	kg	4021176		mm
30-1+S	90	3⁵/₈	100	4	1.10	756894	614 137	13
30-10+S	120	5	100	4	1.20	756979	614 137	13
30-2+S	160	6	150	6	2.80	757051	621 211	17
30-20+S	200	8	150	6	3.10	757136	621 211	17
30-3+S	250	10	200	8	7.00	757211	626 281	19

Sliding-arm Pullers with Constantly Parallel Claws

Heavy-duty three-arm universal pullers, type series 11

The tried & proven industrial puller for removing heavy pulleys, gears and similar components.

Extra powerful drop-forged models
Strong, single-piece puller head section for heavy loads
Arms for all applications
Mechanical and hydraulic operation

Numerous combination options thanks to interchangeable arms from model to model.

Useful for outside and inside pulling operations

Parallel adjustment ensures that the item to be pulled always rests fully on the claw faces for a gentle pulling effect.

Three-arm universal pullers, type series 11-A

Mechanical pullers with standard-type, standard-length arms

Art. no.	mm	"	mm	"	kg			mm
11-0-A	375	15	200	8	15.30	005886	11-3-0	36
11-1-A	520	21	200	8	21.00	075421	11-3-1	41
11-2-A	650	26	200	8	23.00	006203	11-3-1	41

Three-arm universal pullers, type series 11-A

Mechanical pullers with standard-type, off-length arms

Art. no.	mm	"	mm	"	kg			mm
11-0-A3	375	15	300	12	17.10	729263	11-3-0	36
11-0-A4	375	15	400	16	18.60	729348	11-3-0	36
11-0-A5	375	15	500	20	20.10	729423	11-3-0	36
11-1-A3	520	21	300	12	22.50	729591	11-3-1	41
11-1-A4	520	21	400	16	24.00	729676	11-3-1	41
11-1-A5	520	21	500	20	25.50	729751	11-3-1	41
11-2-A3	650	26	300	12	24.90	706158	11-3-1	41
11-2-A4	650	26	400	16	26.00	729836	11-3-1	41
11-2-A5	650	26	500	20	27.60	729911	11-3-1	41

Three-arm universal pullers, type series 11-AV

Mechanical pullers with adjustable-length arms

Art. no.	mm	"	mm	"	kg			mm
11-0-AV	375	15	300-500	12-20	23.10	730078	11-3-0	36
11-1-AV	520	21	300-500	12-20	28.50	730153	11-3-1	41
11-2-AV	650	26	300-500	12-20	30.50	730238	11-3-1	41

Sliding-arm Pullers with Constantly Parallel Claws

Three-arm universal pullers, type series 11-B

Hydraulic pullers with standard-type, standard-length arms

Art. no.	mm	"	mm	"	kg		Hydr.	Capacit t
11-0-B	375	15	200	8	17.80	075346	8-1-B	15
11-1-B	520	21	200	8	26.50	006128	8-2-K	20
11-2-B	650	26	200	8	29.00	006388	8-2-K	20
11-3-B	650	26	300	12	30.70	706073	8-2-K	20

Three-arm universal pullers, type series 11-BV

Hydraulic pullers with adjustable-length arms

Art. no.	mm	"	mm	"	kg		Hydr.	Capacity, t
11-0-BV	375	15	300-500	12-20	26,70	730313	8-1-B	15
11-1-BV	520	21	300-500	12-20	33,10	730498	8-2-K	20
11-2-BV	650	26	300-500	12-20	34,90	730566	8-2-K	20

Hydraulic screws for pullers belonging to type series 11

The great advantage of these powerful screws is their ability to remove stubborn parts quickly and easily.
They are easy to fit in place of the mechanical screws.
The max. permissible hydraulic load is reached at a torque of 45 Nm (8-1) or 30 Nm (8-2). Do not exceed those values.

Art. no.	Capacity, t	Stroke, mm	kg		Suitable for nos.
8-1-B	15	10	6.80	034596	11-0
8-2-K	20	10	9.00	034831	11-1 + 11-2

(For method of operation, see page 18.)

Arms for pullers belonging to type series 11

(suitable for all sizes)

Art. no.	Qty.	mm	"	kg		For puller nos.
3-200-S	3	200	8	4.70	003318	11-0, -1, -2, -3, 30-3
3-300-S	3	300	12	6.50	003646	11-0, -1, -2, -3, 30-3
3-400-S	3	400	16	7.70	003981	11-0, -1, -2, -3, 30-3
3-500-S	3	500	20	11.70	004223	11-0, -1, -2, -3, 30-3

The above arms also fit two-arm pullers belonging to type series 20.

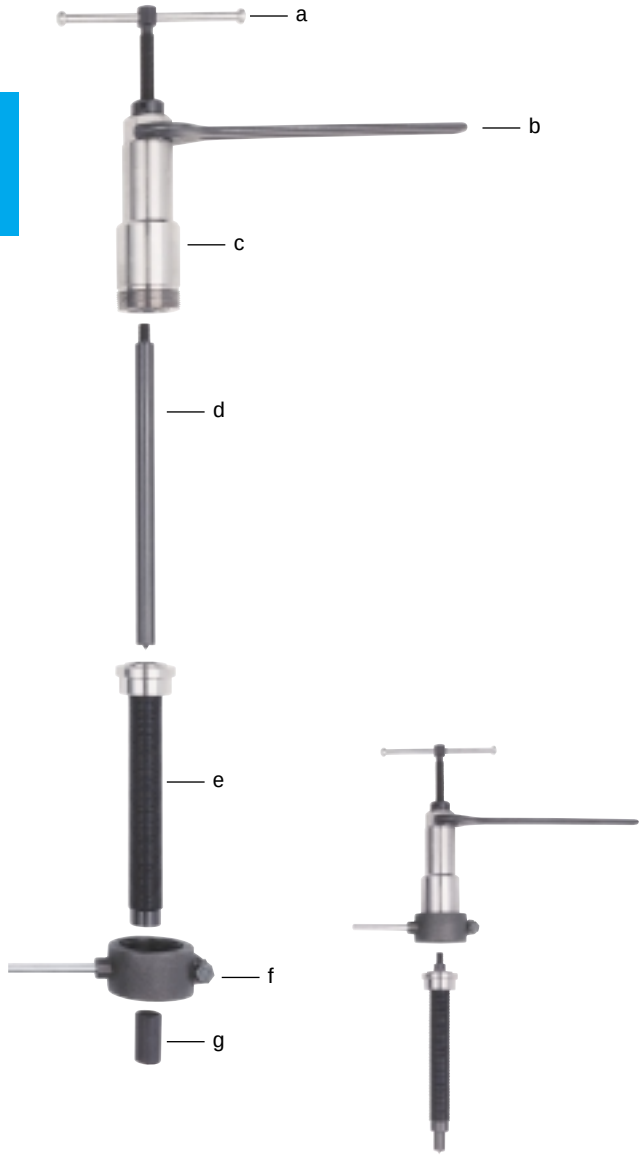
Adjustable-length arms for pullers belonging to type series 11

Claws adjust to various lengths. Therefore only one pair is required for various depths.

Art. no.	Qty.	mm	"	kg		For puller nos.
4-SP-S	3	300-500	12-20	4.70	004711	11-0, -1, -2, -3, 30-3

The above arms also fit two-arm pullers belonging to type series 20.

Hydraulic Screws/Rams for KUKKO Pullers



15 and 20-ton hydraulic screws

The great advantage of these powerful hydraulic screws is their ability to quickly and easily remove tight-fitting parts.

Through the use of interchangeable spindle assemblies, one hydraulic forcing screw will fit numerous different KUKKO pullers (please refer to opposite page).

Assembly procedure:
Screw the thrust bolt **(d)** into the taphole in the hydraulic ram **(c)**. Slide the hollow spindle **(e)** over the thrust bolt, and insert it into the opening at the bottom of the hydraulic ram.
Turn the breechlock nut **(f)** onto the threaded end of the ram, and tighten the side screw.
Push the thrust pad **(g)** over the end of the thrust bolt **(d)**.

Operation:
Use the spanner **(b)** to turn the screw into the puller head until the thrust pad is securely seated on the end of the shaft. Now, turn the T-handle **(a)** to start the hydraulic action.

Turning must be done by hand. The handle is sized to ensure that the maximum permissible torque can not be exceeded.

Back off the T-handle (a) after each operation.

Complete hydraulic screws

to be used with KUKKO pullers

Art. no.	Capacity t	kg		Suitable for puller nos.
8-1-B	15	6.8	034596	11-0, 18-4, 20-4, 20-40
8-1-F	15	7.7	034671	46 + 47, 209-2
8-2-K	20	9.9	034831	11-1 + 11-2
8-2-M	20	10.0	034916	18-5 + 20-5

Caution:
Perfect alignment of the hydraulic puller with the part to be withdrawn is very important. Misalignment will create extra bending forces and damage the tool or cause accidents. Before operating under pressure, part and puller should be wrapped securely in a KUKKO® protective blanket (page 92). Forces exerted must be controlled carefully during the pulling action. The maximum permissible load will be reached at a torque of 45 Nm (8-1) or 30 Nm (8-2) and must not be exceeded.

Pulling tool type 18-4 with hydraulic screw type 8-1-B and separator type 15-4

Puller type 11-2-B with hydraulic screw type 8-1-K and special-purpose puller arms type 4-SP-S

Puller type 20-5 with hydraulic screw type 8-2-M and special-purpose puller arms type 5-SP-P

Hydraulic Screws/Rams for KUKKO Pullers

Hydraulic ram types 8-1 and 8-2 for hydraulic screws

Art. no.	Capacity, t	Stroke, mm	Maximum permissible load Pulling force	Torque	kg	
8-1	15	10	150 KN	45 Nm	4.60	034428
8-2	20	10	200 KN	30 Nm	6.20	034756
8-1-ERS	Spare parts set for		8-1	0,70		243721
8-1-REP	Factory overhaul and reconditioning		8-1			237478
8-2-ERS	Spare parts set for		8-2		1.00	243806
8-2-REP	Factory overhaul and reconditioning		8-2			237546

(For operation, see page 18.)

Hollow spindle assemblies suitable for ram type 8-1

(complete with thrust bolt, as illustrated at left)

Art. no.	Thread diameter and length	Suitable for puller nos.	kg	
8-B*	R 1" x 250 mm	11-0, 18-4, 20-4, 20-40	2.00	034183
8-F**	R 1" x 350 mm	46 + 47, 209-2	2.90	034268

* with thrust pad 35 mm
** with thrust pad 135 mm

Hollow spindle assemblies suitable for ram type 8-2

(complete with thrust bolt, as illustrated at left)

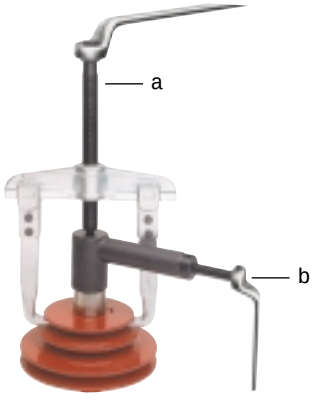
Art. no.	Thread diameter and length	Suitable for puller nos.	kg	
8-K*	R $1^1/_8$" x 250 mm	11-1 + 11-2	2.60	035098
8-M**	R $1^1/_8$" x 350 mm	18-5 + 20-5	3.90	035173

* with thrust pad 45 mm
** with thrust pad 135 mm

Auxiliary hydraulic rams, type series 9

Highly efficient. Minimal space requirement.
These rams make a first-class auxiliary tool for boosting the working force of mechanical pullers applied to particularly stubborn components. To avoid overloading, such rams should only be used with size-3 pullers or larger.

Art. no.	Dia. mm	Height mm	Stroke mm	Max. permissible load Pulling force	Torque	kg	
9-1	37	62	10	100 KN	35 Nm	0.85	005053
9-2	50	80	15	150 KN	50 Nm	1.60	005138
9-1-ERS	Spare parts set for				9-1	0.30	243981
9-1-REP	Factory overhaul and reconditioning				9-1		237621
9-2-ERS	Spare parts set for				9-2	0.50	244063
9-2-REP	Factory overhaul and reconditioning				9-2		237706



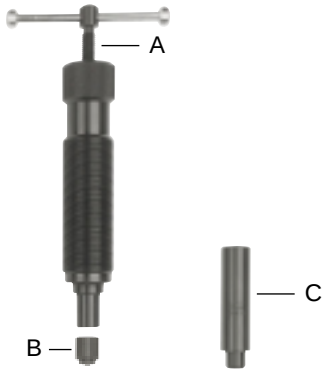
Note:
The nominal capacity is reached at a torque of 35 Nm (9-1) or 50 Nm (9-2), respectively, and must not - in order to prevent accidents and damage to the tool - be exceeded.

Operation:
Position the ram, with its side pressure screw **(b)** fully backed off, between the shaft and the puller screw **(a)**, and secure by tightening the latter. Initiate hydraulic action by tightening the side pressure screw **(b)**. If the part fails to come off with the first stroke of the ram, continue to work the puller screw **(a)** or proceed as follows:

- back off the side pressure screw **(b)**;
- retighten the puller screw **(a)**;
- retighten the side pressure screw **(b)**.

Important: After use, back off screw (b) to make the built-in restoring spring return the thrust bolt to its initial position.

Compact High-performance Hydraulic Rams, Type series „800“



With their favorably diminutive overall dimensions, these compact, high-performance rams have proven themselves many times over as power producers and problem solvers in the toolmaking branch and numerous other areas.

The original low-maintenance KUKKO design featuring a slip-free hydraulic system devoid of trapped air guarantees dependable operation and high performance.

Operation:
Prior to use, back off the upper spindle **(A)** so that the pull-back spring can return the piston to its starting position.

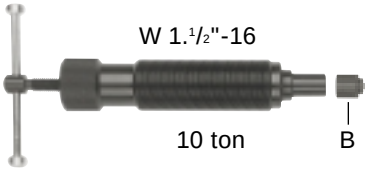
Then, slip on the accompanying pressure pad **(B)**, screw the hydraulic ram into the puller's tapped bore, and tighten it down.

If the spindle is too short, remove the pressure pad, attach one or more spindle extensions **(C)**, as necessary, and mount the pressure pad **(B)** at the end of the assembly.

To apply hydraulic force, tighten the upper spindle (A = forcing screw), being careful not to exceed the load stamped on the body of the ram (max. to ~ kN).

To prevent accidents or damage to the tool, take care to ensure that all components involved are designed to handle the ram's compressive force rating.

Since work involving high levels of force always also involves the possibility that parts might fly apart, take appropriate preventive measures, e.g., securely wrap the workpiece and ram in a KUKKOÒ protective blanket (page 92), and always wear the personal protective equipment prescribed by the applicable industrial safety regulations.



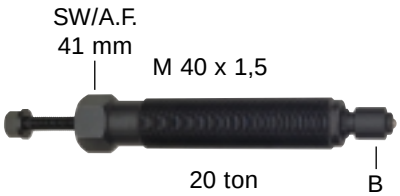
no. 800

no. 801

Hydraulic rams, 100 kN and 150 kN (10 and 15 ton)

These rams have 1 1/2" male Whitworth threads (as do most tools of this type now available on the market; see pages 26-31 for pulling tools to use with series „800“ rams).

Art. no.	Max. capacity achieved at:	Stroke ~	G (Ø 38 mm)	L (retracted)	kg	
800	100 kN=40 Nm	10 mm	W 1.1/2"-16	~ 200 mm	1.40	034343
801	150 kN=70 Nm	10 mm	W 1.1/2"-16	~ 200 mm	1.50	784446
800-REP	Factory overhaul and reconditioning, no. 800					
801-REP	Factory overhaul and reconditioning, no. 801					



no. 802

Hydraulic rams, 200 kN (20 ton)

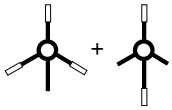
This ram has M 40 x 1.5/DIN 13 male threads. The nose of the spindle has AF 41 mm spanner flats to enable application of substantial initial tension. Prior to applying initial tension, turn back the hydraulic pressure screw all the way.
Then, apply the hydraulic force by tightening it with a 19 mm hexagon wrench.

Art. no.	Max. capacity achieved at:	Stroke ~	G (Ø 40 mm)	L (retracted)	kg	
802	200 kN=100 Nm	10 mm	M 40 x 1,5	~ 200 mm	1.90	784514
802-REP	Factory overhaul and reconditioning, no. 802					

Ram extensions

Art. no.	Extends by:	For use with ram nos.:	kg	
800-050	50 mm	800, 801, 802	0.15	031113
800-100	100 mm	800, 801, 802	0.35	031298
800-150	150 mm	800, 801, 802	0.55	031373

Heavy-duty Pullers for Workshop, Assembly Work and Construction Site



Heavy-duty pullers, type series 46/47

Tried & proven many thousand times over, these original KUKKO pullers are used for pulling off spoke wheels, gears, pulleys, etc.

Extra robust design

Strong, drop-forged head for accommodating two or three arms.

Interchangeability of component parts from puller to puller permits any number of combinations.

Mechanical or hydraulic operation

Heavy-duty two-arm puller, type series 46-A with mechanical forcing screw

Art. no.	mm	"	mm	"	kg	4021176		mm
46-1-A	300	12	300	12	9.40	016936	11-3-0	36
46-2-A	500	20	450	18	11.70	017193	46-3-2	36

Heavy-duty two-arm puller, type series 47-A with mechanical forcing screw

Art. no.	mm	"	mm	"	kg	4021176		mm
47-1-A	300	12	300	12	11.40	017681	11-3-0	36
47-2-A	500	20	450	18	14.40	017841	46-3-2	36

For hydraulic operation, replace pressure screw no. 11-3-0 or no. 46-3-2 with a no. 8-1-F hydraulic ram (see page 18)

Heavy-duty two-arm puller, type series 46-B with hydraulic screw

Art. no.	mm	"	mm	"	kg	4021176	Hydr.	Capacity t
46-1-B	300	12	300	12	14.60	017018	8-1-F	15
46-2-B	500	20	450	18	16.00	017278	8-1-F	15

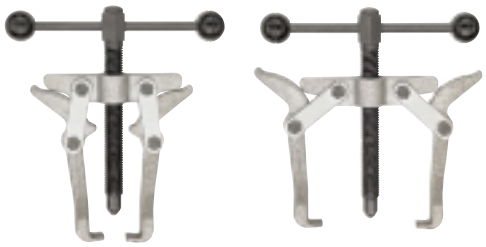
Heavy-duty three-arm puller, type series 47-B with hydraulic screw

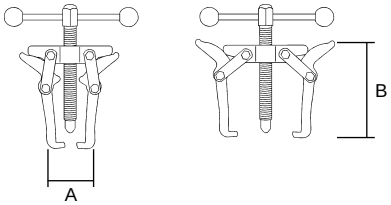
Art. no.	mm	"	mm	"	kg	4021176	Hydr.	Capacity t
47-1-B	300	12	300	12	16.70	017766	8-1-F	15
47-2-B	500	20	450	18	18.80	017926	8-1-F	15

Puller arms for type series 46 and 47

Art. no.	Part		kg	4021176	Suitable for nos.
46-300	puller arm, reach: 300 mm	1	2.00	017438	46-1 + 47-1
46-450	puller arm, reach: 450 mm	1	2.70	170461	46-2 + 47-2

Pullers with Self-locking Claws





Quick-adjusting two-arm pullers, type series 28

When the puller is mounted, a cam system locks the claws in place by forcing the arms tightly up against the part to be pulled. The claws cannot possibly slip off or yield in any direction.

The greater the pulling force, the better the grip.

Quick-adjusting two-arm pullers, type series 28

Art. no.	A	B	Capacity, t	Capacity, kg			
28-1	50-**125** mm	135-**100** mm	6	1.7	850929	620 162	24
28-2	50-**150** mm	150-**125** mm	6	1.8	851001	620 172	24
28-3	50-**200** mm	200-**175** mm	8	2.2	851186	620 230	24
28-4	50-**250** mm	225-**250** mm	8	2.3	851261	620 250	24

Three-arm Pullers with Preselectable Spread

Three-arm pullers, type series 12

Sturdy pullers with high pulling force and excellent gripping effect for removing particularly stubborn ball bearings, gears, pulleys, etc.

Use the key to adjust the requisite spread and firmly grip the item to be pulled. This effectively prevents the arms from slipping off or otherwise yielding.

Three-arm pullers for outside pulling

Art. no.	mm	"	mm	"	Capacity, t	Capacity, kg			
12-1	100	4	100	4	6	1.20	006616	614 135	17
12-2	150	6	125	5	8	1.70	006791	618 175	19
12-3	200	8	165	$6^1/_2$	10	3.40	006876	623 230	24

Three-arm pullers for outside and inside pulling

Use the key to adjust the requisite spread of the smooth-running, symmetrically gripping arms via the lever system, which forces the arms tightly up against the part to be pulled.

Art no.	mm outside pulling		mm inside pulling		Capacity, t	Capacity, kg			
12-4	20-250	225	225-325	50	10	11.00	850509	626 355	27
12-5	30-350	275	300-425	50	10	13.30	850684	626 480	27
12-6	50-450	300	350-550	50	15	32.50	850769	633 600	36
12-7	75-650	350	550-725	50	15	41.00	850844	633 600	36

Pullers with Self-centering and Self-aligning Arms

This original, tried & proven KUKKO design features self-centering, quick-action clamping and automatic grip adjustment.

In the presence of force from the spindle, the arms clasp the part to be pulled with automatically increasing intensity. The puller arms are made of drop-forged special steel.

Pullers belonging to type series 43

for small electric motors, battery terminals, small ball bearings, etc.

These handy, space-saving models with slender claws are especially suitable for automotive electrical equipment, electrical workshops, pneumatic repairs and similar applications.

Two-arm pullers, type series 43

Art. no.	mm	"	mm	"	kg	4021176		
43-1	60	$2^{3}/_{8}$	50	2	0.22	015458	609 087	
43-2	70	$2^{3}/_{4}$	70	$2^{3}/_{4}$	0.24	015861	609 087	
43-3	80	$3^{1}/_{4}$	80	$3^{1}/_{4}$	0.26	015946	609 105	

Three-arm pullers, type series 43

Art. no.	mm	"	mm	"	kg	4021176		
43-11	60	$2^{3}/_{8}$	50	2	0.26	015526	609 087	
43-12	70	$2^{3}/_{4}$	70	$2^{3}/_{4}$	0.30	015601	609 087	
43-13	80	$3^{1}/_{4}$	80	$3^{1}/_{4}$	0.34	015786	609 105	

N

Two-arm pullers, type series 44

Sturdy models for removing tightly seated gears, bearings, pulleys, wheels, etc.

Art. no.	mm	"	mm	"	kg	4021176		mm
44-1	100	4	100	4	0.50	016028	612 130	14
44-2	120	$4^{3}/_{4}$	120	$4^{3}/_{4}$	0.80	016103	614 160	17
44-3	160	$6^{3}/_{8}$	160	$6^{3}/_{8}$	1.80	016288	618 210	19
44-4	250	10	200	8	3.20	016363	623 260	24
44-5	300	12	250	10	3.60	815133	623 325	24
44-6	375	15	275	11	4.00	815218	623 360	24

(Hydraulic models, see type 844 on page 26)

N

Three-arm pullers, type series 45

Sturdy models for removing tightly seated gears, bearings, pulleys, wheels, etc.

Art. no.	mm	"	mm	"	kg	4021176		mm
45-1	100	4	100	4	0.60	016448	612 130	14
45-2	120	$4^{3}/_{4}$	120	$4^{3}/_{4}$	1.10	016516	614 160	17
45-3	160	$6^{3}/_{8}$	160	$6^{3}/_{8}$	2.30	016691	618 210	19
45-4	250	10	200	8	4.00	016776	623 260	24
45-5	300	12	250	10	4.60	815393	623 325	24
45-6	375	15	275	11	5.00	815478	623 360	24
45-7	600	24	350	14	6.30	821646	623 450	24

(Hydraulic models, see type 845 on page 26)

Pullers with Self-centering, Self-aligning Arms

KUKKO autogrip

The convenient two-arm and three-arm puller concept with automatic self-clamping, self-locking and self-centering features, all incorporated in an extra-compact design.
Thanks to integrated self-alignment with spring mechanism, the gripping power increases in proportion to the pulling power.

The elastic effect in combination with a lean design enables pulling operations in hard-to-access places.

Two-arm KUKKO-autogrip pullers, type series 482

Art. no.	mm	"	mm	"	kg	
482-1	60	$2^{3}/_{8}$	40	$1^{1}/_{2}$	0.20	479779
482-2	85	$3^{1}/_{4}$	90	$3^{1}/_{2}$	0.58	479854
482-3	150	6	150	6	0.68	479939
482-4	200	8	200	8	1.38	480096
482-5	250	10	250	10	1.76	480171

Three-arm KUKKO-autogrip pullers, type series 483

Art. no.	mm	"	mm	"	kg	
483-2	85	$3^{1}/_{4}$	90	$3^{1}/_{2}$	0.36	480331
483-3	150	6	150	6	0.90	480416
483-4	200	8	200	8	1.82	480584
483-5	250	10	250	10	2.20	480669

Two-arm KUKKO-autogrip pullers in display package

Art. no.	Contents: puller nos.	kg	
482-DP	**482-1**, **482-2**, **482-3**	1.42	745836

Pullers with Claw Feet

Two-arm pullers, type series 14

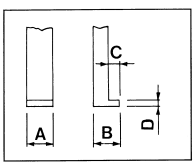
with extra-slender claw feet for coping with tight spaces when pulling gears, bearings and similar components.
Individually adjustable spread and reach thanks to self-locking retaining pins (that do not fall out in the middle of the job!). These specially designed pullers are self-gripping and easy to use. A variety of arm attachment options yield an extremely broad range of spread. The shearlike nature of the arm mounts presses the claws „undetachably“ up against the part to be pulled.

Art. no.	mm	"	mm	"	kg	
14-1	6-100	$^{1}/_{4}$-4	85	$3^{3}/_{8}$	0.50	455421
14-2	10-140	$^{3}/_{8}$-$5^{1}/_{2}$	125	$4^{5}/_{8}$	1.00	248443
14-3	15-140	$^{3}/_{8}$-$5^{1}/_{2}$	160	$6^{1}/_{4}$	1.20	248511

Pullers with extremely narrow claws

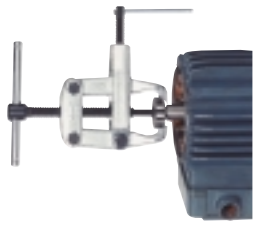
Art. no.	mm	"	mm	"	kg	
14-01*	6-100	$^{1}/_{4}$-4	85	$3^{3}/_{8}$	0.50	459559
14-03**	5-140	$^{3}/_{8}$-$5^{1}/_{2}$	160	$6^{1}/_{4}$	1.20	460111

* 14-01: 15 kN (1.5 t) = 25 Nm max.
** 14-03: 30 kN (3.0 t) = 55 Nm max.

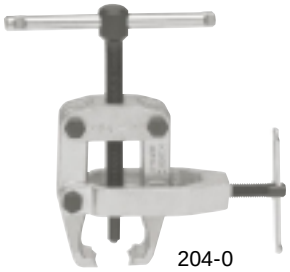


mm	14–01	14–03
A	11	12
B	8,5	11
C	4,5	5
D	3,5	3,5

Pullers with Side Clamps



Indispensable tools for removing flush-mounted parts.
When the side clamp is tightened, it forces the claws in under the part to be pulled, thus prying it away before the actual pulling process begins.

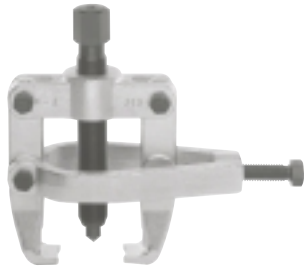


204-0

Bearing puller, type series 204-0

This tool is very useful for removing flush-mounted ball bearings, bearing races, etc. in, say, light-engineering, electrical and pneumatic maintenance shops.

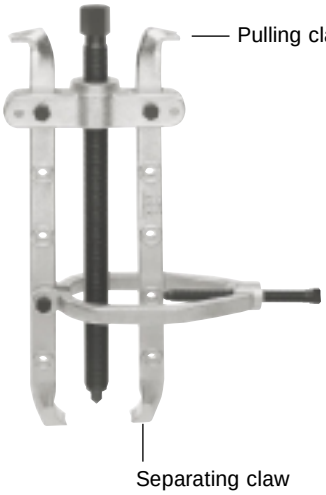
Art. no.	mm	"	mm	"	kg	4021176	
204-0	50	2	70	2 3/4	0.65	028168	610 094
204-02	90	3 1/2	100	4	2.00	339516	621 130



Pullers, type series 204

For use in pulling ball bearings, gears, pinions, steering arms and similar parts. The clamp forces the arms tightly up against the part to be removed.

Art. no.	mm	"	mm	"	kg	4021176		mm
204-1	80	3 1/8	90	3 5/8	1.30	028243	618 105	19
204-2	100	4	100	4	2.00	028328	621 130	22
204-3	150	6	140	5 1/2	3.00	028403	623 170	24



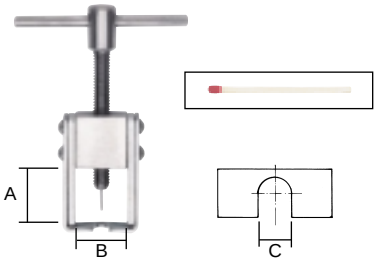
Separator pullers, type series 210

A very versatile tool for cases in which ordinary pullers will not do the job.
The arms' space-saving design facilitates work to be accomplished in confined spaces.

Art. no.	mm	"	mm	"	kg	4021176		mm
210-1	95	3 3/4	170	6 3/4	2.60	030383	621 210	22
210-2	135	4 3/8	270	10 5/8	4.30	030468	623 325	24
210-3	150	6	325	12 7/8	4.80	030536	623 325	24

Special benefits:
The claws on the puller arms have conical blades on one side to facilitate loosening of such closely seated parts as axle bearings, ball bearing races and pinions. The side clamp forces the claws in behind such parts to enable their removal.
The arms are reversible and have normal pulling claws on the other side.

Light-engineering and Instrument-building Pullers



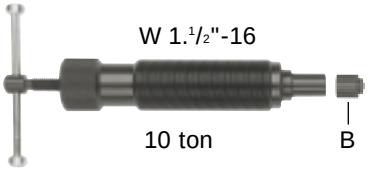
N

Small-part puller - speedometer cable puller

for pulling pointers and similarly small parts off of speedometer cables, pressure gauge cables and modeling assemblies.

Art. no.	A mm	B mm	C mm	g	4021176
T-014-0	20	18	5	80	860746

Pullers with 10-ton Hydraulic Ram
Modular Type series „800“



This model series constitutes a modular system, i.e., all pullers use the same hydraulic ram and consist of easily replaceable, multifariously combinable, individual parts.

These models are available as complete hydraulic pullers as well as in the form of practical sets of components for putting together a multitude of different puller tools.

Operation:
Prior to use, back off the upper spindle (A) so that the piston can return to its starting position. Then, place the accompanying pressure pad (B) on the thrust bolt, and screw the hydraulic ram into the puller's head such that the ram fits up snugly on the shaft. Actuation of the upper spindle (A) increases the pressure and pulls the part off.
Attach one or more spindle extensions to the thrust bolt if the length of the hydraulic ram is insufficient. Finally, mount the pressure pad (B) on the spindle extension.

800-050 800-100 800-150

Hydraulic ram, type series 800

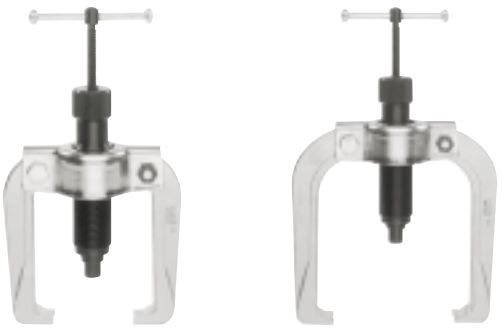
(with pressure pad, without ram extensions)

Hydraulic rams belonging to type series 800 achieve high pulling force with only minimal manual exertion.
No other pulling tools are required.

The axially oriented jacking piston does not rotate inside of the hydraulic ram during the pulling process. Thus, the ram can not „wander“.

The ram extensions enable quick accommodation of different working conditions.

Art. no.	Capacity, t	Stroke, mm	"	kg	4021176	Threads
800	10	10	3/8	1.40	034343	W 1.1/2"-16
800-ERS	Spare parts set for no. 800			0.30	244483	
800-REP	Factory overhaul and reconditioning			-	238123	
800-050	Ram extension, 50 mm (2")			0.15	031113	
800-100	Ram extension, 100 mm (4")			0.35	031298	
800-150	Ram extension, 150 mm (6")			0.55	031373	

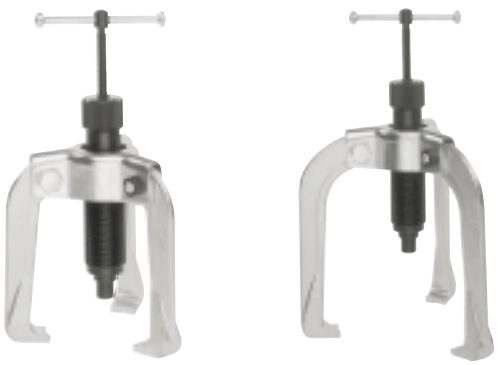


Two-arm hydraulic pullers, type series 844

Complete with hydraulic ram and ram extension

Art. no.	mm	"	mm	"	kg	4021176	Ram extension no.
844-1-B	50-100	2-4	100	4	3.00	031601	800 050
844-2-B	75-150	3-6	150	6	3.50	031946	800 100
844-3-B	75-150	3-6	250	10	4.40	032448	800 150
844-4-B	100-200	4-8	200	8	4.10	076091	800 150
844-5-B	130-250	5-10	250	10	4.70	032776	800 150

Replace the hydraulic ram with a mechanical forcing screw type 844-626 for mechanical operation of these pullers (cf. opposite page)



Three-arm hydraulic pullers, type series 845

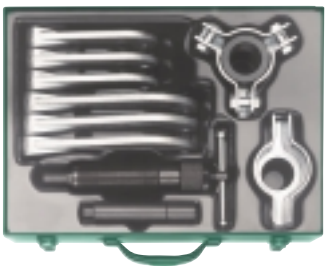
Complete with hydraulic ram and ram extension

Art. no.	mm	"	mm	"	kg	4021176	Ram extension no.
845-1-B	50-100	2-4	100	4	3.50	033218	800 050
845-2-B	75-150	3-6	150	6	4.20	033438	800 100
845-3-B	75-150	3-6	250	10	5.60	033681	800 150
845-4-B	100-200	4-8	200	8	5.00	033841	800 150
845-5-B	130-250	5-10	250	10	6.00	034008	800 150

Replace the hydraulic ram with a mechanical forcing screw type 844-626 for mechanical operation of these pullers (cf. opposite page)

Pullers with 10-ton Hydraulic Ram
Modular Type series „800“

Hydraulic puller sets



Hydraulic „4-puller“ set „ABZ 100-H“ (10 tons)

This set contains 4 combinable pullers - 2 ea. three-arm pullers and 2 ea. two-arm pullers with spreads of **50-150 mm** and depths up to **150 mm**.

Art. no.	mm	"	mm	"	kg	
845-150	50-150	2-6	150	6	10.20	717871

Hydraulic „4-puller“ set in display pack (10 tons)

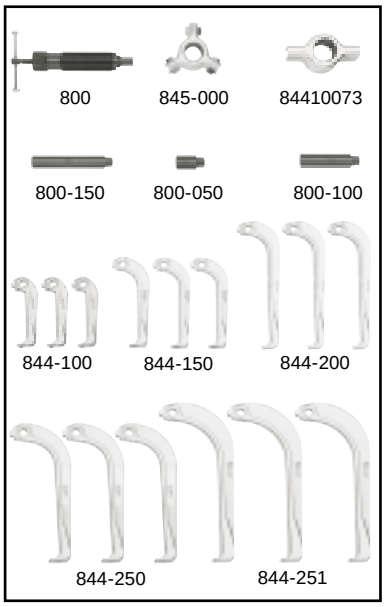
This set contains 4 combinable pullers - 2 ea. three-arm pullers and 2 ea. two-arm pullers - with spreads of **50-150 mm** and depths up to **150 mm**.

Art. no.	mm	"	mm	"	kg	
P-84445	50-150	2-6	150	6	7.00	281181

Hydraulic „6-puller“ set „ABZ 150-H“ (10 tons)

This set contains 6 combinable pullers - 3 ea. three-arm pullers and 3 ea. two-arm pullers - with spreads of **75-250 mm** and depths up to **250 mm**.

Art. no.	mm	"	mm	"	kg	
845-250	75-250	3-10	250	10	15.60	717956



Hydraulic „10-puller“ set (10 tons)

This set contains 10 combinable pullers - 5 ea. three-arm pullers and 5 ea. two-arm pullers - with spreads of **50-250 mm** and depths up to **250 mm**.

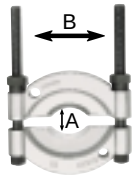
Art. no.		kg	
845-851	in metal case	20.00	172854

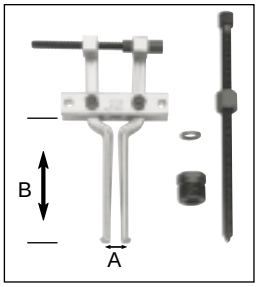
Mechanical operation

By replacing the type-800 hydraulic ram with this mechanical pressure screw, the pullers of this modular type series can be converted for mechanical operation.

Art. no.	kg		mm
844-626	1.28	032851	24

Pulling Tools with 10-ton Hydraulic Ram
Modular Type series „800“





818-021

Hydraulic pulling tool type 818-0

Complete with hydraulic ram and ram extension

Art. no.	mm	"	mm	"	kg	4021176	Ram extension no.
818-0	240	$9^1/_2$	280	11	7.60	173196	800 150

This pulling tool is the basic element of a system that includes numerous accessories for extensive versatility!

with separator **with internal extractor** **with pulling arms**

Pulling bolt extensions for type 818-0

Screwed into the ends of the pulling bolts, each pair extends the reach of the puller by 250 mm (10").

Art. no.	Length, mm	"	kg	4021176	Qty.	Suitable for no.
818-250	250	10	0.80	173356	1 ea.	818-0

Separators for use with type 818-0

The pulling bolts of the hydraulic pulling tool type 818-0 screw into the separator.

Art. no.	A mm	A "	B mm	B "	kg	4021176
Y-215-2	22-115	$^7/_8$-$4^5/_8$	115	$4^5/_8$	2.50	172106
Y-215-3	25-155	1 -$6^1/_4$	155	6	5.20	039546
Y-215-4	30-200	$1^1/_4$-8	200	8	12.00	385629

Internal extractor, for use with type 818-0

Complete with pulling screw, spindle nut, thrust washer and „plain hole“ beam converter.

Art. no.	A mm	A "	B mm	B "	kg	4021176
818-021	30-180	$1^1/_4$-7	140	$5^1/_2$	2.70	757969

Puller arms, complete with nut and washer

These puller arms convert pulling tool 818-0 into a two-arm hydraulic puller.

Art. no.	Length, mm	"	kg	4021176	Qty.	Suitable for no.
820-225	225	10	0.80	173356	1 ea.	818-0 + 820-0

Since this multifarious and practical combination is needed in most cases, it is also available as a complete puller device (see below).

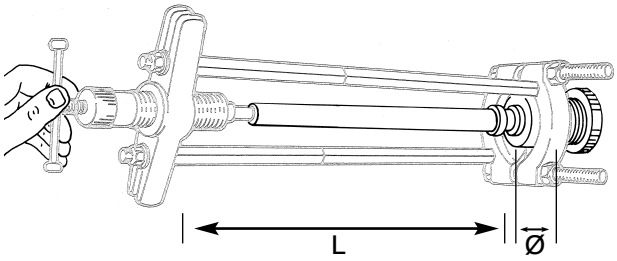
Hydraulic two-arm puller type 820-0

Complete with hydraulic ram and ram extension

Art. no.	mm	"	mm	"	kg	4021176
820-0	225	$8^7/_8$	225	$8^7/_8$	7.00	173684

Pulling Tools with 10-ton Hydraulic Ram
Modular Type series „800“

Hydraulic bearing puller sets



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Hydraulic bearing puller set (10 tons)
„ABZ 200-H“

for bearings with diameters of: **22-115 mm**
and depths up to: **530 mm**

Art. no.	Ø mm	Ø "	L mm	L "	kg	
818-100	22-115	7/8-4 5/8	530	21	15.70	717611

N

Hydraulic bearing puller set (10 tons)
„ABZ 250-H“

for bearings with diameters of: **25-155 mm**
and depths up to: **780 mm**

Art. no.	Ø mm	Ø "	L mm	L "	kg	
818-150	25-155	1-6 1/4	780	31	18.50	717796

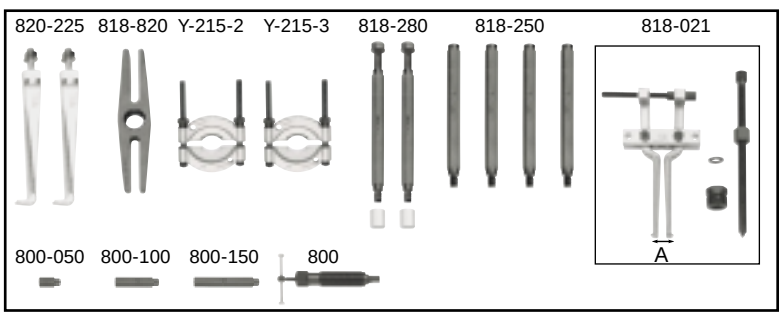
(not illustrated)

Hydraulic bearing puller and extractor set (10 tons)
in metal case

1) for separating — bearings with diameters of: **25-155 mm**; and depths up to: **780 mm**
2) for pulling out — bearings with bores up to: **30-180 mm**
3) for pulling off — parts with spreads up to: **225 mm**; and depths up to: **225 mm**

Art. no.	Ø	L			A	kg	
818-215	22-155 mm	780 mm	225 mm	225 mm	30-180 mm	23.00	173271
	1 - 6 1/4"	31"	8 7/8"	8 7/8"	1 1/4 -7"		

This set contains the components for:
Pulling tool (type 818-0)
Spread: up to 240 mm (9 1/2")
With pulling bolt extension for
reaches up to 780 mm (31")
Separator (type Y-215-2)
Capacity: 22 -115 mm (7/8" - 4 5/8")
Separator (type Y-215-3)
Capacity: 25 -155 mm (1" - 6 1/4")
Internal extractor type 800-221 for
bores 30 - 180 mm (1 1/4" - 7")
Two-arm puller type 820-0
Spread: up to 225 mm (8 7/8")
Reach: up to 225 mm (8 7/8")



Pullers with 10-ton Hydraulic Ram
Modular Type series „800“

Hydraulic universal puller sets in metal cases

Hydraulic universal puller set (10 tons)

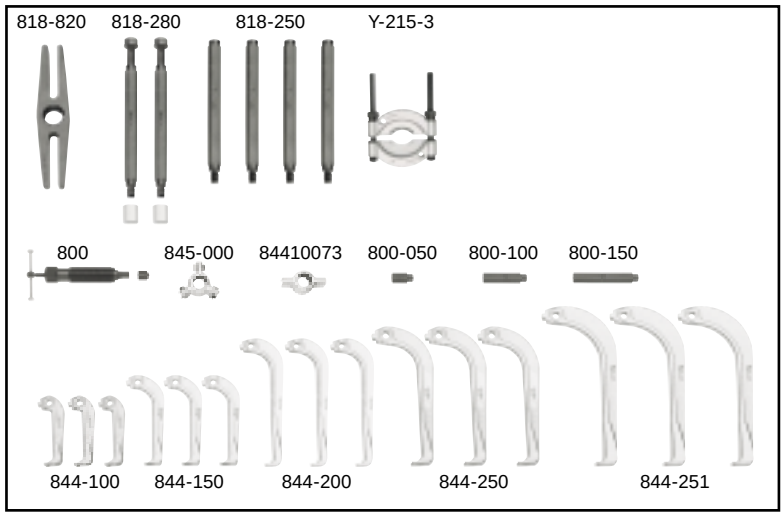
Art. no.	Ø	L			kg	
845-855	25-155 mm	780 mm	50-250 mm	250 mm	39.00	172939
	1 - 6¼"	31"	2 - 10"	10"		

This set contains the components for:
Pulling tool (type 818-0)
Spread: up to 240 mm (9½")
with **pulling bolt extensions** for
reaches up to 780 mm (31")
Separator (type Y-215-3)
Capacity: 25-155 mm (1"-6¼")

and 10 puller models

2-arm versions	**3-arm versions**
Type 844-1-B	**845-1-B**
Type 844-2-B	**845-2-B**
Type 844-3-B	**845-3-B**
Type 844-4-B	**845-4-B**
Type 844-5-B	**845-5-B**

Spread: 50-250 mm (2"-10")
Reach: up to 250 mm (10")



Hydraulic universal puller and extractor set (10 tons)

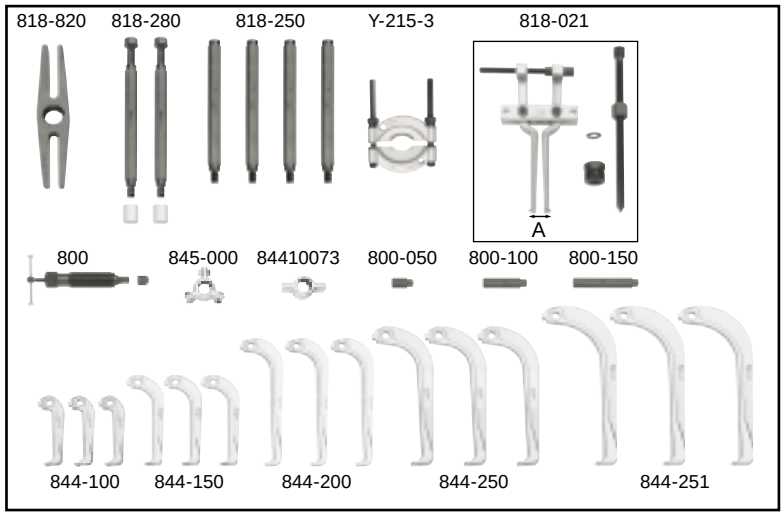
Art. no.	Ø	L			A	kg	
845-858	25-155 mm	780 mm	50-250 mm	250 mm	30-180 mm	42.00	173011
	1 - 6¼"	31"	2-10"	10"	1¼-7"		

This set contains the components for:
Pulling tool (type 818-0)
Spread: up to 240 mm (9½")
with **pulling bolt extensions** for
reaches up to 780 mm (31")
Separator (type Y-215-3)
Capacity: 25-155 mm (1"-6¼")
Internal extractor type 818-021 for
bores (1¼"-7")

and 10 puller models

2-arm versions	**3-arm versions**
Type 844-1-B	**845-1-B**
Type 844-2-B	**845-2-B**
Type 844-3-B	**845-3-B**
Type 844-4-B	**845-4-B**
Type 844-5-B	**845-5-B**

Spread: 50-250 mm (2"-10")
Reach: up to 250 mm (10")

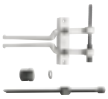


Pullers with Hydraulic Ram, Module-type: Series „800“

Set composition

818-100 = ABZ 200-H
818-150 = ABZ 250-H
845-851
845-250 = ABZ 150-H
P-84445
845-150 = ABZ 100-H
845-858
845-855

Parts List:

									Art. no.	kg	Description
	1	1	1	1	1	1	1	1	**800**	1.40	Hydraulic ram - 10 tons - with pressure pad (800 017) for all pullers 818-0, 820-0, 844 and 845 (all sizes)
	1	1	1	1	1	1	1	1	**800-050**	0.15	Ram extension 50 mm (2")
	1	1	1	1	1	1	1	1	**800-100**	0.40	Ram extension 100 mm (4")
	1	1			1	1	1	1	**800-150**	0.60	Ram extension 150 mm (6")
	3	3	3	3		3			**844-100**	0.50	Puller arm, reach: ↕ 100 mm (4") for pullers 844-1-B and 845-1-B
	3	3	3	3		3			**844-150**	0.60	Puller arm, reach: ↕ 150 mm (6") for pullers 844-2-B and 845-2-B
	3	3			3	3			**844-200**	0.80	Puller arm, reach: ↕ 200 mm (8") for pullers 844-4-B and 845-4-B
	3	3			3	3			**844-250**	1.00	Puller arm, reach: ↕ 250 mm (10") **spread: 150 mm (6")** for pullers 844-3-B and 845-3-B
	3	3			3	3			**844-251**	1.00	Puller arm, reach: ↕ 250 mm (10") **spread: 250 mm (10")** for pullers 844-5-B and 845-5-B
	1	1	1	1	1	1			**84410073**	0.38	Twin head for pullers 844 (all sizes), without grooved center nut, cap screws and nuts
	1	1	1	1	1	1			**845-000**	0.90	Triple head for pullers 845 (all sizes) with grooved center nut, cap screws and nuts
									**844-020**	0.30	Grooved center nut (spare) for heads 844-000 and 845-000
	1	1					1	1	**818-820**	2.60	Head for pullers 818-0 and 820-0
(Y-218-09)	2	2					2	2	**818-280**	1.00	Pulling bolt for device 818-0 with nut, washer, and end protector
	4	4					4	2	**818-250**	0.80	Pulling bolt extension, reach: 250 mm (10")
									820-225	0.80	Puller arm, reach: ↕ 225 mm (9") for puller 820-0 with nut and washer
								1	**Y-215-2**	2.50	Bearing separator, capacity: ↔ 22-115 mm (7/8-4 5/8") suitable for pulling tool 818-0
	1	1					1		**Y-215-3**	5.20	Bearing separator, capacity: ↔ 25-155 mm (1 - 6 1/4") suitable for pulling tool 818-0
									Y-215-4	12.00	Bearing separator, capacity: ↔ 30-200 mm (1 1/4 - 8 ") suitable for pulling tool 818-0
		1							**818-021**	2.70	Internal extractor, capacity: 30-180 mm (1 1/4 - 7 ") for use with pulling tool 818-0 complete with pulling screw, nut, washer and „plain hole“ beam converter
									**844-626**	1.20	Mechanical spindle with pressure pad (800 017) for converting the hydraulic puller into a mechanical puller. (Suitable for all series-800 pullers.)

Swivel-Arm Pullers

Sturdy universal models for use on pulleys, gears, ball bearings and similar parts.

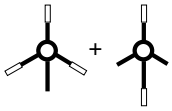
Their unique self-locking system ensures that „the harder the pull, the tighter the grip“.

Basic models:

Two-arm pullers for use in confined spaces and in combination with **separators**.

Three-arm pullers for ensuring even distribution of load, a secure hold on the part to be withdrawn, and concentric pulling action.

Combination pullers are two-in-one versions that permit both **two-arm** and **three-arm pulling** jobs simply by shifting one of the arms.



Kombi

Two-arm pullers, type series 201

with reversible double-end jaws

Art. no.	mm	"	mm	"	kg	4021176		mm
201-0	100	4	75	3	0.50	026423	612 080	14
201-1	150	6	85	3 1/4	0.90	026591	614 135	17
201-2	220	8	130	5 1/4	2.40	026676	621 210	22
201-3	300	12	260	10	4.70	026751	626 280	27
201-4	380	15	300	12	5.20	026836	626 280	27

Three-arm pullers, type series 202

with reversible double-end jaws

Art. no.	mm	"	mm	"	kg	4021176		mm
202-0	100	4	75	3	0.70	027093	612 080	14
202-1	150	6	85	3 1/4	1.10	027178	614 135	17
202-2	220	8	130	5 1/4	3.00	027253	621 210	22
202-3	300	12	260	10	6.40	027338	626 280	27
202-4	380	15	300	12	7.10	027413	626 280	27

Three-arm combination pullers, type series 203

Also for use as **two-arm** and **three-arm pullers**, with reversible double-end jaws

Art. no.	mm	"	mm	"	kg	4021176		mm
203-0	120	5	75	3	0.60	027666	612 080	14
203-1	180	7	80	3 1/4	1.20	027741	614 135	17
203-2	280	11	130	5 1/4	3.10	027826	621 210	22
203-3	350	14	260	10	6.50	027901	626 280	27
203-4	400	16	300	12	7.20	028083	626 280	27

Special-purpose pullers for fan wheels, type series 201/202-S

These extra-slender puller arms reach through two or three slots to seize the hub of the fan.

Art. no.	Version	mm	"	mm	"	kg	4021176		mm
201-S	two-arm	200	4	200	4	1.10	026911	614 240	17
202-S	three-arm	200	4	200	4	1.50	027581	614 240	17

Swivel-Arm Pullers

Mini-models, type series 41-0 and 42-0

Extra-strong design with hexagonal spindle heads
(13 mm / ½" across flats)

Art. no.	Version	mm	"	mm	"	kg	4021176	
41-0	2-arm	60	2 3/8	40	1 5/8	0.20	362859	610 070
42-0	3-arm	60	2 3/8	40	1 5/8	0.25	362026	610 070

Two-arm and three-arm mini-pullers

Small, handy models for automotive electrical systems, battery terminals, light engineering, electrical service shops, etc.

Art. no.	Version	mm	"	mm	"	kg	4021176	
41-1	2-arm	65	2 9/16	65	2 9/16	0.20	015038	609 087
41-2	2-arm	80	3 1/4	80	3 1/4	0.25	015113	609 105
42-1	3-arm	65	2 9/16	65	2 9/16	0.30	015298	609 087
42-2	3-arm	80	3 1/4	80	3 1/4	0.35	015373	609 105

Two- and three-arm pullers, type series 41 and 42

with standard-length claws

Art. no.	Version	mm	"	mm	"	kg	4021176		mm
41-3	2-arm	90	3 1/2	120	5	0.70	787829	612 150	14
41-4	2-arm	130	5	160	6 3/8	1.80	836268	614 200	17
41-5	2-arm	180	7 1/8	200	10	3.70	836343	621 245	22
42-3	3-arm	90	3 1/2	120	5	1.00	787904	612 150	14
42-4	3-arm	130	5	160	6 3/8	2.70	836428	614 200	17
42-5	3-arm	180	7 1/8	200	10	5.10	836596	621 245	22

Two-arm pullers, type series 205

With adjustable-length arms

Art. no.	mm	"	mm	"	kg	4021176		mm
205-00	100	4	100	4	0.50	028571	612 110	14
205-01	150	6	150	6	1.00	028656	614 160	17
205-02	250	10	220	8 3/4	2.50	028731	621 210	22
205-1	300	12	280	11	5.20	028816	626 280	27
205-2	400	16	400	16	6.40	028991	626 400	27
205-3	500	20	540	21	9.00	029073	626 400	27

Three-arm pullers, type series 206

With adjustable-length arms

Art. no.	mm	"	mm	"	kg	4021176		mm
206-00	100	4	100	4	0.60	029158	612 110	14
206-01	150	6	150	6	1.40	029233	614 160	17
206-02	250	10	220	8 3/4	3.30	029318	621 210	22
206-1	300	12	280	11	6.80	029493	626 280	27
206-2	400	16	400	16	8.20	029561	626 400	27
206-3	500	20	540	21	12.60	029646	626 400	27

Three-arm combination pullers, type series 207

For **two-arm** and **three-arm pulling**,
with adjustable-length arms

Art. no.	mm	"	mm	"	kg	4021176		mm
207-00	120	5	100	4	0.60	029721	612 110	14
207-01	200	8	150	6	1.50	029806	614 160	17
207-02	300	12	220	8 3/4	3.30	029981	621 210	22
207-1	400	16	280	11	7.00	030048	626 280	27
207-2	450	18	400	16	8.90	030123	626 400	27
207-3	550	22	540	21	12.90	030208	626 400	27

Swivel-Arm Puller Sets

Two-arm and three-arm puller set

This set includes parts for **4 different** mechanical **pullers** with reversible double-end jaws for a **wide variety** of **outside** and **inside pulling jobs**.

Art. no.	Description	kg	
K-203	Set in metal case	8.5	288784

Examples:

Range of application

Spread:	**180 mm**	**280 mm**	**180 mm**	**280 mm**
Reach:	**80 mm**	**130 mm**	**80 mm**	**130 mm**

Two-arm and three-arm puller set

This set includes parts for **4 different** mechanical **pullers** with long, adjustable-length arms for extra-deep reaches and added versatility.

Art. no.	Description	kg	
P-207	Set in display pack	5.2	280849

Examples:

Range of application

Spread:	**200 mm**	**300 mm**	**200 mm**	**300 mm**
Reach:	**150 mm**	**220 mm**	**150 mm**	**220 mm**

Two-arm and three-arm puller + separator set

This set includes parts for **4 different** mechanical **pullers** with reversible double-end jaws and a pair of separators for added versatility.

Art. no.	Description	kg	
K-20315	Set in metal case	12.0	280504

Examples:

Range of application

Spread:	**180 mm**	**280 mm**	**180 mm**	**280 mm**
Reach:	**80 mm**	**130 mm**	**80 mm**	**130 mm**

Separation pulling

Max. part diameter:	**75 mm**	**115 mm**
Reach:	**80 mm**	**130 mm**

Swivel-Arm Puller Sets

Two-arm and three-arm puller + separator set

This set includes parts for **4 different** mechanical **pullers** with **long arms** for **extra-deep reach**, in addition to **2 separators** for added versatility.

Art. no.	Description	kg	
P-20715	Set in display pack	8.6	281006

Examples:

Range of application

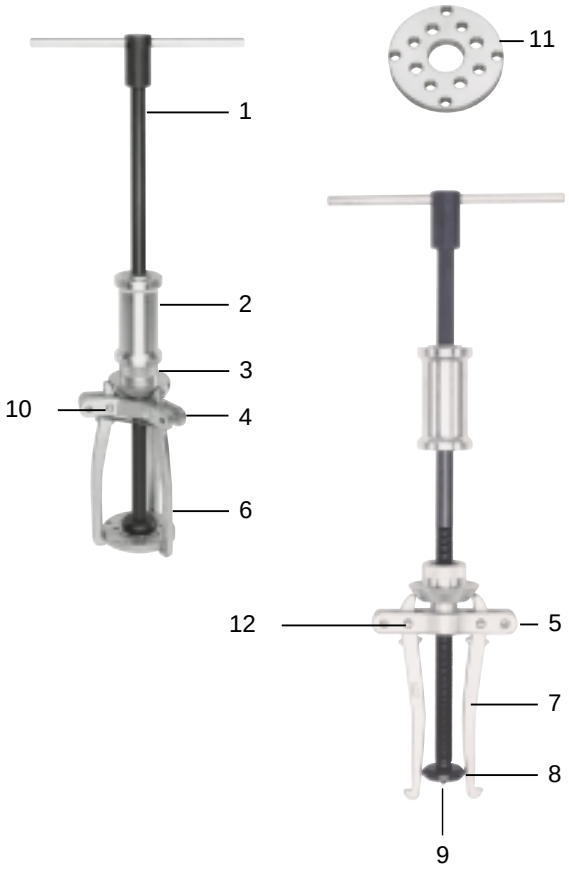



Spread:	**200 mm**	**300 mm**	**200 mm**	**300 mm**
Reach:	**150 mm**	**220 mm**	**150 mm**	**220 mm**

Separation pulling


Max. part diameter:	**75 mm**	**115 mm**
Reach:	**150 mm**	**220 mm**

Pullers with Slide Hammer - Percussion-type Pullers



Puller with slide hammer, type 220

For pulling gears, ball bearings, bearing races, seal rings and other parts.

Art. no.	External spread with 3 broad arms mm	"	Internal spread with 2 slender arms mm	"	kg	
220	0-200	8	40-92	$1^5/_8$-$3^5/_8$	7.0	030611

Pulling is effected by attaching the puller and executing several sharp blows with the slide hammer:

The puller consists of:

1) Slide screw shaft with bar handle
2) Slide hammer
3) Adjusting cone
4) Three-part puller head
5) Two-part puller head
6) Set of 3 broad arms for external pulling
7) Set of 2 slender arms for internal pulling
8) Distance plate
9) Screw center
10) Spring
11) Pulling plate attachment
12) Set of 3 tie bolts for the arms

Operation:

Outside pulling

Attach the pulling claws to the inner holes in the pulling head. The rotating radial spring acting on the top ends of the claws generates spring tension that automatically pushes the claws up against the part to be pulled. Tighten the adjusting cone to give the claws an „undetachable“ grip. Remove the part either by means of sharp blows of the slide hammer or by tightening the slide screw shaft.

Pulling parts with tapped bores

Insert standard-type screws of a size to match that of the tapped bores through the holes in the pulling plate attachment. Place the pulling claws behind the attachment, and remove the part by means of sharp blows of the slide hammer.

Two- or three-arm inside pulling

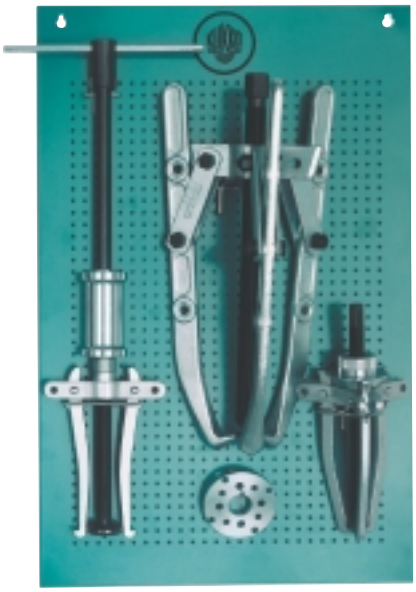
Attach the pulling arms with their claws showing outward to the outer holes in the pulling head. Slip the accompanying distance plate onto the bottom end of the slide screw shaft on the puller head. Insert the claws into the bore of the part to be pulled, and tighten the slide screw shaft as far as necessary to effect a good grip of the claws in the collar of the part to be pulled. Effect pulling by means of sharp blows of the slide hammer.

Puller no. 220-02 and no. 220-03

These self-gripping pullers with cone-driven spread adjuster „undetachably“ grip the part to be pulled.

Art. no.	Version	mm	"	mm	"	kg		
220-02	2-arm	200	8	165	$6^1/_2$	2.10	778919	619 251
220-03	3-arm	200	8	165	$6^1/_2$	2.60	779091	619 251

Pullers with Slide Hammer - Percussion-type Pullers



N

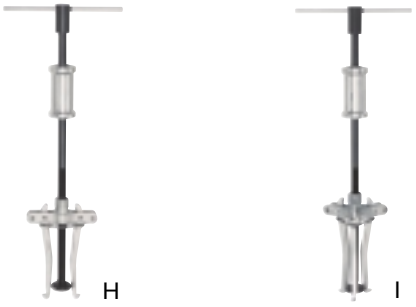
Set of percussion pullers with slide hammer, no. 220-T

This set contains an array of pulling tools for universal application (cf. below). It comes clearly arranged on a space-saving, wall-mounting perforated toolboard (780 x 480 mm).

Art. no.	Description	kg	
220-T	Set of pullers with slide hammer	17.5	778759

The set includes:

1) slide-hammer unit with slide screw shaft, bar handle and slide hammer
2) two-arm head with claws
3) three-arm head with claws, radial spring and adjusting cone
4) mechanical pressure screw
5) pulling plate attachment for pulling parts with tapped bores
6) distance plate for use on inside pulling jobs
7) three-arm + two-arm combination puller
8) perforated toolboard, 780 x 480 mm



for the following pulling tools:

A) two-arm puller with slide hammer
spread: to 200 mm
depth: to 165 mm

B) two-arm puller with pressure screw
spread: to 200 mm
depth: to 165 mm

C) three-arm puller with slide hammer
spread: to 200 mm
depth: to 165 mm

D) three-arm puller with pressure screw
spread: to 200 mm
depth: to 165 mm

E) pullers for parts with tapped bores

F) two-arm puller for outside pulling
spread: to 450 mm
depth: to 400 mm
for inside pulling bores: 100-300 mm

G) three-arm puller for outside pulling
spread: to 450 mm
depth: to 400 mm
for inside pulling bores: 100-300 mm

H) two-arm inside puller with slide hammer
for bores of 40-90 mm

I) three-arm inside puller with slide hammer
for bores of 40-90 mm

Operation A - B - C - D:
Attach the pulling claws to the inner holes in the pulling head. The rotating radial spring acting on the top ends of the claws generates spring tension that automatically pushes the claws up against the part to be pulled. Tighten the adjusting cone to give the claws an „undetachable“ grip. Remove the part either by means of sharp blows of the slide hammer or by tightening the slide screw shaft.

Operation E:
Insert standard-type screws of a size to match that of the tapped bores through the holes in the pulling plate attachment. Place the pulling claws behind the attachment.

Operation F - G:
Two or three pulling arms can be mounted on the head, as necessary. The pulling arms have several mounting holes to accommodate different depths. To pull the part, tighten the mechanical pressure screw. For inside pulling, mount the pulling arms on the head with their claws showing outward.

Operation H - I:
Attach the pulling arms with their claws showing outward to the outer holes in the pulling head. Slip the accompanying distance plate onto the bottom end of the slide screw shaft on the puller head. Insert the claws into the bore of the part to be pulled, and tighten the slide screw shaft as far as necessary to effect a good grip of the claws in the collar of the part to be pulled.

The Puller Specialist Since 1919

KUKKO - the Original

Universal Bearing Extractor

Comprising an internal extractor and a counterstay.

Internal extractor with two extracting jaws and an extractor screw for forcing them apart.

Forged counterstay with powerful screw, torque nut and T-handle.

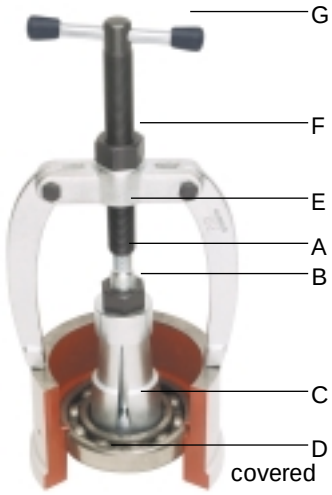
Made of drop-forged special steel.

The perfect tool for use in **extracting ball bearings**, **ball bearing races**, **sleeves** and **bushes**.

Securely holds and extracts - quickly and easily - even bearings that fit closely up against the back of the housing.

Top-notch performance and durability guaranteed.

Universal Bearing Extractors, Type Series 21 and 22



This complete puller consists of an internal extractor type 21 and a counterstay type 22.

Removable reduction collar

(For screw plugs for pulling parts with tapholes, see page 44.)

The perfect tool for **pulling out ball bearings**, **ball bearing races**, **sleeves** and **bushes**.
Securely grips and extracts quickly and easily, even bearings that fit closely up to the back of the housing.
Top-notch performance and durability guaranteed.

Operation:
Push the type-21 internal extractor into the bore of the bearing, Tighten nut **B** to spread the jaws **C** and force the lips **D** in behind the rounded race edge. Place the type-22 counterstay on the bearing housing, and tighten the screw **E** down on the extractor screw **A**. Now, hold the handle **G** firmly and tighten the nut **F** to extract the bearing smoothly and evenly.
Keep tightening the extractor nut **B** during the pulling process.

Internal extractors, type series 21-0 - 21-9

Art. no.	mm	"	kg	4021176	
21-0	5- 8	$^{13}/_{64}$-$^{5}/_{16}$	0.07	010408	22-1
21-00	6- 10	$^{1}/_{4}$-$^{25}/_{64}$	0.07	010576	
21-01	8- 12	$^{5}/_{16}$-$^{1}/_{2}$	0.08	010651	
21-02	10- 14	$^{13}/_{32}$-$^{9}/_{16}$	0.08	010736	
21-1	12- 16	$^{31}/_{64}$-$^{5}/_{8}$	0.16	010811	
21-2	14- 19	$^{35}/_{64}$-$^{3}/_{4}$	0.18	010996	
21-3	18- 23	$^{23}/_{32}$-$^{29}/_{32}$	0.20	011153	22-2
21-4	20- 30	$^{7}/_{8}$-$1^{7}/_{61}$	0.22	011238	
21-5	28- 40	$1^{7}/_{64}$-$1^{29}/_{64}$	0.36	011498	
21-6	36- 46	$1^{27}/_{64}$-$1^{13}/_{16}$	0.68	011566	
21-7	45- 58	$1^{25}/_{32}$-$2^{19}/_{64}$	1.20	011641	22-3
21-8	56- 70	$2^{13}/_{64}$-$2^{3}/_{4}$	1.44	011726	
21-9	70-100	$2^{3}/_{4}$-$3^{15}/_{16}$	2.56	011986	

Counterstays, type series 22-1 - 22-3
For internal extractors 21-0 - 21-9

Art. no.	*Connection to internal extractor			kg	4021176	Capacity (max.) t
22-1	21-0 - 21-02	**with**	reduction collar	0.6	012228	3
	21-1 - 21-5	**without**	reduction collar			
22-2	21-3 - 21-5	**with**	reduction collar	1.6	012303	4
	21-6 - 21-8	**without**	reduction collar			
22-3		**by connecting nut**				
	21-6 - 21-8	**with**	reduction collar	3.9	012488	5
	21-9	**without**	reduction collar			

* Counterstays 22-1, 22-2 and 22-3 are each supplied with an attached reduction collar. Type 22-3 is supplied with an attached connecting nut and a reduction collar screwed into the nut. Use according to table.

Slide Hammer Units

For internal extractors and needle bearing extractors belonging to type series 21.
These units are useful for jobs in which space restrictions forbid the use of a standard counterstay. Attach the unit to the extractor and bump the hammer vigorously against the top ridge to extract the bearing.

Art. no.	kg	4021176	
22-0	0.40	012143	21-0 - 21-2
22-01	2.50	248108	21-3 - 21-8; 21-40 - 21-46
22-09	2.80	879579	21-9
22-089	2.60	451799	21-89
22-090	6.00	451959	21-90

Extracting Tools

Internal extractors, 16-21, 21-89 and 21-90

For large ball bearings, outer ball races and similar parts

These tools are provided with spreaders to be mounted on the lower screw end in a given position to obtain the required jaw spread.

Art. no.	For bores of mm	"	kg		
16-21	60-155	2 3/8-6 1/8	3.00	251559	16-22
21-89	56-110	2 1/4-4 3/8	2.30	011801	22-4
21-90*	100-200	4-7 7/8	6.30	012068	22-5

* Size 21-90 has two bores for jaw attachment:
use inner holes for bores of 100 - 150 mm (4" - 6");
use outer holes for bores of 150 - 200 mm (6" - 7 7/8").

Counterstays, for use with internal extractors 16-21, 21-89 and 21-90

For connection to the internal extractor, screw the spindle into the clamping nut of the internal extractor.

Art. no.		Capacity (max.) t	kg	
16-22	16-21	7	4.80	251634
22-4	21-89*	7	4.50	112478
22-5	21-90*	9	7.80	012556

(*cf. page 40 for matching slide-hammer units)

Complete Sets of Bearing Pulling and Extracting Tools

In metal cases

Type series 24 sets

Containing internal extractors, counterstays, pulling chuck and external pullers.

Art. no.	Contents	No.	kg	
24-A	6 internal extractors (12-46 mm)	21-1 - 21-6	10.50	012716
	2 counterstays	22-1 + 22-2		
	1 pulling chuck	23		
	1 battery terminal puller	43-1		
	1 two-arm puller	20-1		
24-B	8 internal extractors (12-70 mm)	21-1 - 21-8	19.50	012891
	2 counterstays	22-1 + 22-2		
	1 pulling chuck	23		
	1 battery terminal puller	43-1		
	2 two-arm pullers	20-1 + 20-2		
24-C	7 internal extractors (12-58 mm)	21-1 - 21-7	26.30	012976
	1 internal extractor (56-110 mm)	21-89		
	3 counterstays	22-1, 22-2, 22-4		
	1 pulling chuck	23		
	1 battery terminal puller	43-1		
	2 two-arm pullers	20-1 + 20-2		

Type series 25 sets

Containing internal extractors and counterstays only.

Art. no.	Contents	no.	kg	
25-K	3 internal extractors (6 - 20 mm)	21-00 - 21-2	3.50	863899
	1 counterstay	22-1		
25-A	6 internal extractors (12 - 46 mm)	21-1 - 21-6	7.00	013058
	2 counterstays	22-1 + 22-2		
25-B	8 internal extractors (12 - 70 mm)	21-1 - 21-8	9.90	013133
	2 counterstays	22-1 + 22-2		
25-C	7 internal extractors (12 - 58 mm)	21-1 - 21-7	17.80	013218
	1 internal extractor (56-110 mm)	21-89		
	3 counterstays	22-1, 22-2, 22-4		

Ball-bearing Pulling and Extracting Tools

Internal extractors with slide hammer as sets in metal cases

Art. no.	for bores: ø	Set comprising:	kg	
26-A	6-16 mm	22-0/21-00/21-02/21-1	1.00	781629
26-B	6-40 mm	22-0/21-00/21-01/21-1 22-01/21-2/21-4/21-5	4.50	781704
26-C	8-46 mm	22-0/21-01/21-1/21-2 22-01/21-4/21-5/21-6	5.00	781889
26-D	28-58 mm	22-01/21-5/21-6/21-7	3.50	781964

224-1

224-2

Internal extractor with slide hammer, type series 224

For pulling end journal bearings, pilot bearings, bearing races and similar parts. The hooks at the front of the tool insert into the bore of the part to be removed and are forced around it when the screw is turned. A few sharp blows with the hammer will then do the rest.

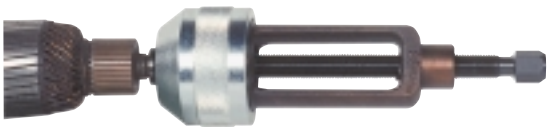
Art. no.	Diametral range mm	"	Reach mm	"	kg	
224-1	12-35	1/2-1 3/8	25	1	1.50	325656
224-2	15-50	5/8-2	50	2	1.60	325571
	Component parts:					
224-GH	Sliding-hammer unit (without extractor)				1.20	325403
224-121	Internal extractor for 224-1 (without slide hammer unit)				0.30	325731
224-221	Internal extractor for 224-2 (without slide hammer unit)				0.40	325816

Internal extractor with slide hammer, type 221-G

Practical extractor with wide gripping range. Especially well-suited for use in confined spaces with too little room for attaching counterstays or pulling tools.

Once the extractor has been attached, extraction is effected by sharp blows with the slide hammer.

Art. no.	mm	"	L mm	"	kg	
221-G	30-180	1 1/4-7	140	5 1/4	4.00	175824



Removing an inner ball bearing race with the aid of a pulling chuck type 23.

Pulling chuck, type 23

For use in pulling 5 - 32 mm dia. deep-groove inner races out of magnetos, dynamos/generators, electric motors and small electric machines. Same mode of action as that of a keyless three-jaw drill chuck.

Art. no.	mm	"	kg		
23	5-32	3/16-1 1/4	1.50	012631	614 159

Extracting Tools

Needle-bearing extractor set in metal case

Art. no.	Set comprising the extractors:	Counterstay	for needle bearings with bores of:	kg	
25-N	21-41 to 21-46	22-1	12-22 mm	2,60	787096

Needle bearing extractors, type series 21-40 through 21-46

For extracting needle bearings from crankshafts, casings, etc.

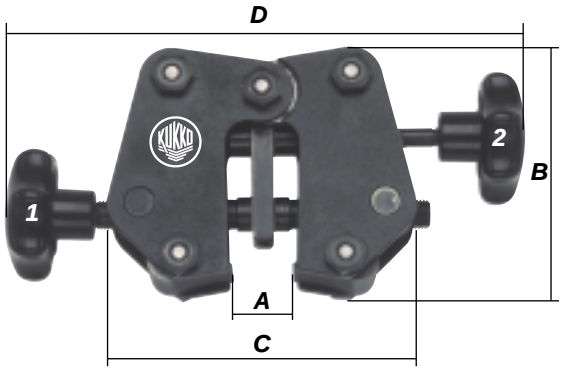
Art. no.	mm	"	Fits needle bearings for shaft dia.: mm	"	kg		
21-40	9,6-18	$^{3}/_{8}$ - $^{3}/_{4}$	10	$^{3}/_{8}$	0.22	411526	22-1-22-2
21-41	11,5-19	$^{29}/_{64}$ - $^{3}/_{4}$	12	$^{1}/_{2}$	0.22	186066	22-1-22-2
21-42	12,5-21	$^{1}/_{2}$ - $^{55}/_{64}$	14	$^{9}/_{16}$	0.22	186141	22-1-22-2
21-43	14,5-22	$^{37}/_{64}$ - $^{7}/_{8}$	15+16	$^{5}/_{8}$	0.22	186226	22-1-22-2
21-44	16,5-23	$^{21}/_{32}$ - $^{59}/_{64}$	17+18	$^{3}/_{4}$	0.23	186301	22-1-22-2
21-45	18,5-24	$^{47}/_{64}$ - $^{61}/_{64}$	20	$^{13}/_{16}$	0.23	186486	22-1-22-2
21-46	20 -25	$^{51}/_{64}$ - 1	22	$^{7}/_{8}$	0.23	186554	22-1-22-2

(Matching counterstays type 22, see page 40.)

Set of parallel-key and dowel-pin extractors

Threaded adapter with slide hammer for extracting parts with internal threads such as parallel keys (e.g., DIN 6885), dowel pins (e.g., ISO 8735), bearing shafts with safety bores, etc.

Art. no.	Set in metal case with with threaded adapters for:	kg	
223-K	M 3/M 4/M 5/M 6/M 8/M 10/M 12/M 16	2.60	784859



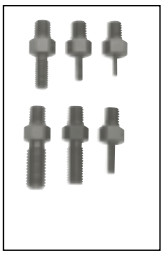
Key puller with eccentric mechanism

With this tool, it is easy to pull tight-fitting keys out of shaft keyways without causing any damage.

Art. no.	mm	"	mm	A	B	C	D	kg	
T-139-1	3	3-35	35	0-35	110	122-144	236	2	779176

Operation:
First, use knob **1** to adjust the jaws of the puller to the width of the key to be pulled. Then, use knob **2** to fully extend them.
Next, position the puller, and use knob **1** to tighten the jaws against the key.
Turn in knob **2** to activate the eccentric mechanism and pull the key up and out of the keyway. To remove the key from the puller, use knob **2** to turn the jaws back to their starting position.

Extracting Tools for Parts with Tapped Bores



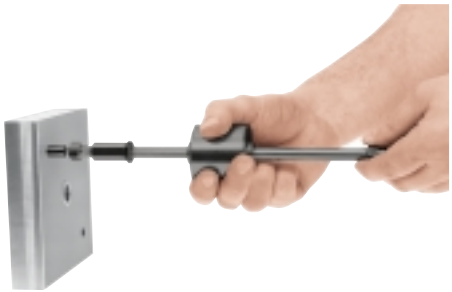
Screw plugs

for use with type series 22 counterstays (cf. page 40)

These plugs screw into the center screw of the counterstay for extraction of parts with concentric tapped bores.

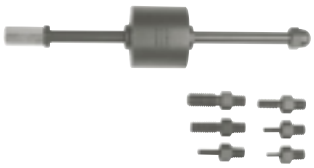
Art. no.	Suitable for counterstays 22-1, 22-2, 22-3*	kg	
22-1-AS	**Complete set,** comprising:	0.17	339288
040 038 54	Screw plug M 4	0.02	
050 038 54	Screw plug M 5	0.03	
060 040 54	Screw plug M 6	0.03	
080 042 54	Screw plug M 8	0.03	
100 046 54	Screw plug M 10	0.03	
120 048 54	Screw plug M 12	0.03	

* Since the standard counterstay 22-3 only comes with a size-3 reduction collar, the extra size-2 reduction collar required for this application must be ordered separately (Art. no. 022 200 21).



Internal extractor with slide hammer, type series 223 for parts with tapholes

For pulling parts with tapholes. The appropriate screw plug screws into the taphole of the part in question, which can then be extracted by sharp blows with the slide hammer. **Indispensable for extracting pins and studs with female threads**, e.g., as per **DIN 7978/ISO 8736** or **DIN 797/ISO 8735**.



Art. no.	Description			kg	
223	**Complete extractor,** comprising:			1.03	309083
223-GH	Slide hammer unit			0.86	309168
	Screw plug	to fit			
	Screw	DIN 7978	DIN7979		
040 038 54	M 4	- A 6	- C 6	0.02	
050 038 54	M 5	- A 8	- C 8	0.03	
060 040 54	M 6	- A 10	- C 10	0.03	
			- C 12		
080 042 54	M 8	- A 12	- C 14	0.03	
		- A 14	- C 16		
100 046 54	M 10	- A 16	- C 02	0.03	
120 048 54	M 12	- A 20	-	0.03	

Other threads on inquiry.

Puller with slide hammer, type 230 for parts with tapped bores

A universal tool for pulling parts with tapped bores, e.g., spur wheels, knock-out pins, etc. The flange has slots of various size to accept standard-type bolts, which screw into the tapped bores in the workpiece.

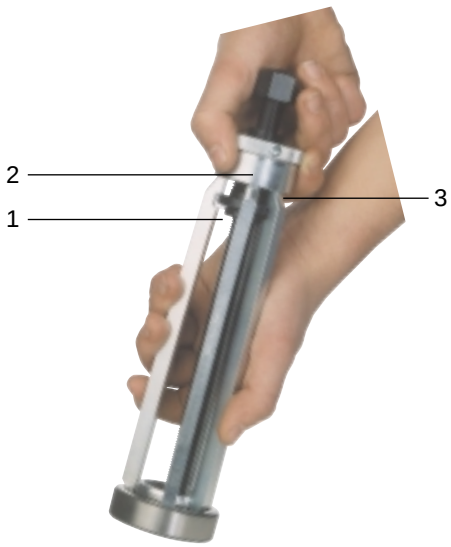
Pulling is effected by attaching the puller and executing several sharp blows with the slide hammer.

Art. no.	For bolt dia.: mm	"	For bolt-circle dia.: mm	"	kg	
230	4-14	1/8-1/2	100-150	4-6	3.80	031038

(See also page 69)

KUKKO - Inventor of the Pulling Tool
Innovation by Tradition since 1919

Deep-groove Ball Bearing Extractors, Type series 70



These extractors are used for quick & easy removal of ball bearings mounted on shafts in housings.

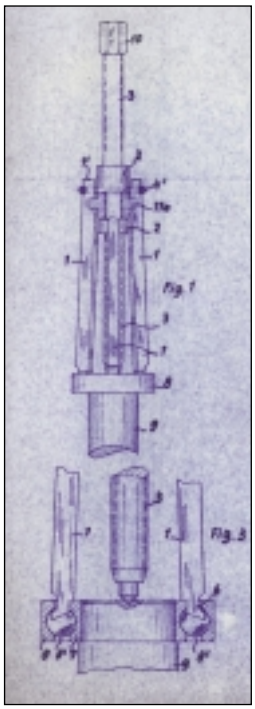
For ball bearings: types 6000 - 6021 types 6200 - 6222
types 6300 - 6317 types 6403 - 6415

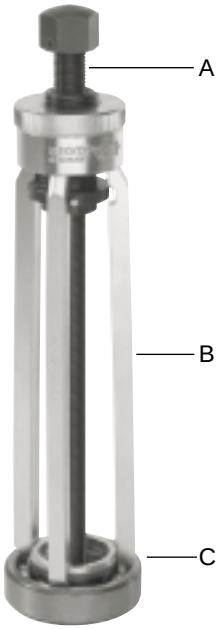
Ball bearing extractors, type series 70, without arms

Art. no.	Suitable sets of arms	kg		
70-1	70-711, 70-712, 70-713	0.30	021138	Select required
70-2	70-721 + 70-722	0.60	021213	arms from
70-3	70-731 + 70-732	1.20	021398	table below.
70-4	70-4730 + 70-4731	2.00	316418	
	70-4733 + 70-4734			

Simple operation:
Select the extractor and arms from the table at right, proceeding from the appropriate ball bearing number and working to the left. Insert the claws between the balls in the outer race of the bearing. For any bearing marked with an asterix (*), first place a spacer ring carrying the matching bearing number on the inner bearing race.

Press the upper end of the claws together, so the recesses can engage around the collar of the threaded bushing (1). Then, firmly tighten the clamping plate (2), which in turn pushes the locking cap (3) over the claws. Remove the ball bearing by tightening the center screw.





No. 70 with arms and spacer ring

Arms for extractors, type series 70, in sets of 4 ea.

Art. no.	Art. No	Length mm	kg per set				Case 70-A	Case 70-K	Case 70-B	
70-1	**70-711**	150	0.17	6000	6200					021479
				6001						
				6002						
				6003						
	70-712** (with 6 spacer rings)	150	0.24	*6004	6201	*6300				021541
				*6005	*6202					
				*6006	*6203					
	70-713** (with 5 spacer rings)	170	0.25		*6204	*6301				021626
					*6205	*6302				
						*6303				
70-2	**70-721**** (with 1 spacer ring)	180	0.45	6007						021701
				6008						
				6009						
				6010						
				*6013						
	70-722** (with 4 spacer rings)	180	056	6011	*6206	*6304				021886
				6012	*6207	*6306				
70-3	**70-731**** (with 6 spacer rings)	217	1.06		*6208	*6307	*6403			021961
					*6209		*6407			
					*6210					
	70-732** (with 9 spacer rings)	217	1.56		6211	*6308	*6404			022043
					*6212	*6309	*6405			
						*6310	*6406			
						*6311	*6408			
70-4	**70-4730**** (with 4 spacer rings)	217	1.22	*6014						320453
				*6015						
				*6016						
				*6017						
	70-4731** (with 6 spacer rings)	217	2.00	*6018	*6213					320521
				*6019	*6214					
				*6020	*6215					
	70-4734 (with 1 spacer ring)	290	120	6021			*6409			320606
	70-4733** (with 19 spacer rings)	290	8.20		*6216	*6312	*6410			320781
					*6217	*6313	*6411			
					*6218	*6314	*6412			
					*6219	*6315	*6413			
					*6220	*6316	*6414			
					*6221	*6317	*6415			
					*6222					

** These sets come with additional spacer rings. The rings expand the utility range of each set of arms by bridging over substantial differences in race spacing.

Deep-groove Ball Bearing Tool Sets

Set of ball bearing pullers, type series 70-A, in metal case for small and medium-size bearings

For ball bearing sizes: * no. 6000 - 6013, no. 6200 - 6212, no. 6300 - 6311, no. 6403 - 6408

Art. no.	Contents		kg	4021176
70-A	**1 extractor**	Type 70-1	8.60	022128
	3 sets of arms	Type 70-711/-712/-713		
	1 extractor	Type 70-2		
	2 sets of arms	Type 70-721 + 70-722		
	1 extractor	Type 70-3		
	2 sets of arms	Type 70-731 70-732		
	1 set of spacer rings (26 ea.)			

* For SKF, FAG, Timken, NTN and equivalent bearings of other make.
The application range of this kit covers, e.g., all bearings in conformance with specification SKF TMMD 61.

N

Set of ball bearing pullers, type series 70-K, in metal case for small bearings

For ball bearing sizes: * no. 6000 - 6013, no. 6200 - 6207, no. 6300 - 6306

Art. no.	Contents:		kg	4021176
70-K	**1 extractor**	Type 70-1	5.00	786754
	3 sets of arms	Type 70-711/-712/-713		
	1 extractor	Type 70-2		
	2 sets of arms	Type 70-721 + 70-722		
	1 set of spacer rings (13 ea.)			

* For SKF, FAG, Timken, NTN and equivalent bearings of other make.

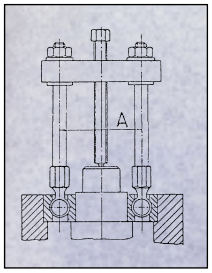
Set of ball bearing pullers, type series 70-B, in metal case for large bearings

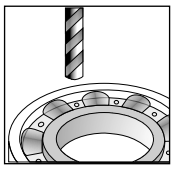
For ball bearing sizes: * no. 6014 - 6021, no. 6213 - 6222, no. 6312 - 6317, no. 6409 - 6415

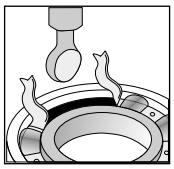
Art. no.	Contents		kg	4021176
70-B	**1 extractor**	Type 70-4	21.00	320866
	1 set of arms	Type 70-4730		
	1 set of arms	Type 70-4731		
	1 set of arms	Type 70-4733		
	1 set of arms	Type 70-4734		
	1 set of spacer rings (30 ea.)			

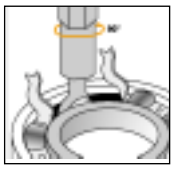
* For SKF, FAG, Timken, NTN and equivalent bearings of other make.

Universal Ball Bearing Pullers, Type series 69







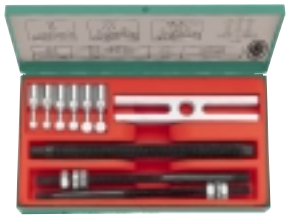


These extractors enable quick and easy pulling of ball bearings of any make off of shafts in casings.

Operation:

The puller engages the bearing rings. This entails destruction of the cage. The spherical segments of the pulling elements insert between the inner and outer rings of the bearing. Turning them 90° tightens their grip and enables uniform extraction of the ball bearing.
(cf. illustration at left)

After screwing the legs of the pulling tool into the pulling elements, fasten them to the head of the puller, and effect pulling by tightening the puller's pressure screw against the shaft upon which the bearing is mounted.



N

Set of universal ball bearing pullers, type series 69-A
in metal case

For ISO ball bearings: **no. 6004-6010** **no. 6201-6206**
no. 6300-6304

Art. no.	Gripping range A	kg	
69-A*	20- 95 mm	0.90	781391

* For SKF, FAG, Timken, NTN and equivalent bearings of other make.

N

Set of universal ball bearing pullers, type series 69-B
in metal case

For ISO ball bearings: **no. 6207-6211** **no. 6305-6308**
no. 6403-6405

Art. no.	Gripping range A	kg	
69-B*	35-120 mm	1.90	781476

* For SKF, FAG, Timken, NTN and equivalent bearings of other make.

N

Set of universal ball bearing pullers, type series 69-C
in metal case

For ISO ball bearings: **no. 6021-6032** **no. 6309-6321**
no. 6212-6230 **no. 6406-6417**

Art. no.	Spannbereich A	kg	
69-C*	56-220 mm	7.40	781544

* For SKF, FAG, Timken, NTN and equivalent bearings of other make.
The application range of this set covers, e.g., all bearings in conformance with specification **SKF TMBP 20**.

Bearing Installation Tools

Bearing fitting tool kits

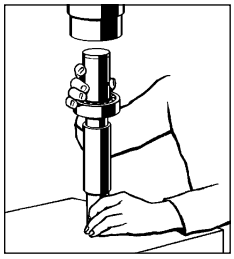
For quick and easy mounting of ball and roller bearings up to 50 mm i.d. and of bushes, seal rings, belt pulleys and similar parts.

This kit contains a variety of 33 hardened impact rings and 5 impact sleeves that slide over the shaft end up to 220 mm, plus a non-rebounding hammer (0.7 kg) with spark-suppressing nylon head.

The required combination of impact ring and impact sleeve for any particular application is shown in the table affixed to the inside of the cover. O-ring seals provide the positive force required for assembly. The necessary force is applied by pounding the impact sleeve with the nonrebounding, spark-free hammer.

The precisely matching components, manufactured with the greatest precision, ensure that the forces involved in the installation of bearings on shafts or in housing bores are transmitted uniformly to the lateral faces of the inner and outer races.

71



Bearing fitting tool kit, type series 71

Extra-sturdy tool-steel version for shop application and for use in pulling and installing particularly tight-fitting bearings with the aid of a shop press.

Set made of tool steel for heavy duty and a long service life. Consequently, unlike lightweight plastic varieties, these tools can be used for pressing-in and pressing-out operations on shop presses.

Art. no.	For bearings* et. al. Inside diameter (d)	Outside diameter (D)	kg	
71	10-50 mm	26-110 mm	21.00	314841

* For SKF, FAG, Timken, NTN and equivalent bearings of other make. The application range of this kit covers, for example, all bearings in conformance with specification SKF 729 125.

T-071-L

Bearing fitting tool kit, type series T-071

Made of shock-resistant polyacetate, this light model is designed to be taken along and used out in the field.

Art. no.	Diametral range Impact rings	Impact sleeves	kg	
T-071-L	10-50 mm	18-32-52 mm	4.00	822483

* For SKF, FAG, Timken, NTN and equivalent bearings of other make. The application range of this kit covers, for example, all bearings in conformance with specification SKF TMFT 33.

Bearing pry bars

These high-alloy, heat-treated chrome-steel tools are very practical for use in prying apart close-fitting bearings and for positioning bearings and similar parts.

Art. no.	Dimensions: mm	kg	
T-123-2	400 x 14 (quadr.)	0.50	826443
T-123-3	400 x 17 (hexag.)	0.60	826511

Bearing Pullers, Type Series 112 and 113

112-1

112-10
112-2
112-20

112-3
112-4

113-20

113-3
114-4
113-5

Self-centering versions of Swedish design for the gentle, non-destructive removal of roller bearings and similar parts.

For the proper removal of bearings, a suitable self-centering bearing puller is needed to avoid any danger of damage to the bearing and/or the bearing seat on the shaft.

Use a three-arm model whenever possible to ensure even distribution of the load. A two-arm model should be used in confined spacers where alignment of a three-arm puller is not possible for lack of room.

Two-arm bearing pullers, type series 112

Art. no.	mm	"	mm	"	kg	4021176		mm	Working range according to SKF tool no.:
112-1	55	2 3/16	45	1 3/4	0.35	418143	610 110	8	TMMP 2 x 55
112-10	65	2 9/16	70	2 3/4	0.40	415591	610 110	8	TMMP 2 x 65
112-2	90	3 1/2	70	2 3/4	0.80	419218	614 135	17	TMMP 2 x 90
112-20	100	4	100	4	0.90	420283	614 160	17	TMMP 2 x 100
112-3	185	7 1/4	165	6 1/2	2.00	420368	616 220	17	TMMP 2 x 170
112-4	250	9 7/8	250	9 7/8	4.70	421358	621 355	22	TMMP 2 x 230

Three-arm bearing pullers, type series 113

Art. no.	mm	"	mm	"	kg	4021176		mm	Working range according to SKF tool no.:
113-20	125	4 7/8	100	4	1.10	422423	614 160	17	TMMP 3 x 125
113-3	185	7 1/4	165	6 1/2	2.70	422751	616 220	19	TMMP 3 x 185
113-4	250	9 7/8	250	9 7/8	5.90	422188	621 355	22	TMMP 3 x 230
113-5	300	11 7/8	250	9 7/8	6.10	423178	623 325	24	TMMP 3 x 300

Operation:

Before dismounting a bearing that is to be reused, mark its position on the seat. Subsequent refitting of the bearing in that same position will considerably extend its service life.

Where the bearing has been mounted on the shaft with an interference fit, the puller arms should grip the inner ring. After carefully centering and aligning with the taper adapter, remove by tightening the center screw against the shaft.

Under cramped conditions, where it is difficult to engage the inner ring, removal should take place using the outer ring. This requires constant rotation of the outer ring during removal to avoid damage to the bearing components due to an uneven load.
In such a case, removal is not effected as stated above by tightening the center screw, but by turning the puller and, hence, the encompassed outer ring around the stationary center screw.
To remove the bearing, the center screw must be locked against the axle. The puller on the withdrawal claw is then rotated by hand around the center screw until the bearing pulls free of its setting.

KUKKO - the Original

Separators, Type Series 15 and 17 with Pulling Tools, Type Series 18

For pulling ball bearings, roller bearings, inner races and other tight-fitting parts.

The sharp, wedge-shaped edges of the separator jaws engage behind the parts to be withdrawn and pry them off their seats.

For pulling items off of a shaft, use the separator together with a suitably sized series-18 pulling tool. The bolts of the matching pulling tool screw into the two tapholes on the separator..

Separators, Type Series 15 and 17 with Pulling Tools, Type Series 18

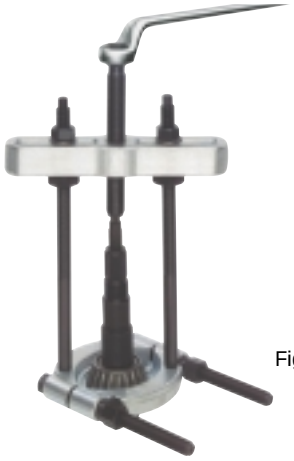
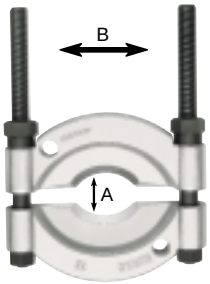
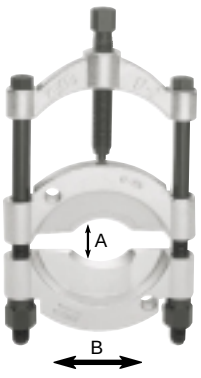


Figure 1

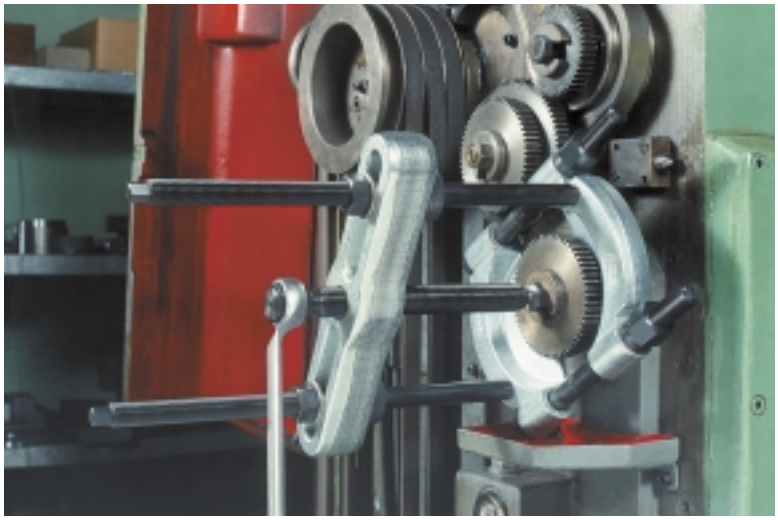
Figure 3





Operation:
Tighten the screw against the end of the shaft (figures 1 and 2).
Hydraulic rams can be used on the larger models.

Hydraulic mode (figure 3)**:**
Use the spanner **(b)** to squeeze the hollow spindle of the hydraulic ram tightly up against the end of the shaft. Turn the handle **(a)** to activate the hydraulic ram. (For detailed instructions, see page 18.)



Series 15 with series 18 Figure 2

Separators, type series 15

Press the separator jaws together by uniformly tightening the nuts on both sides.

Art. no.	Ø A mm	B mm	kg	4021176	
15-0	5- 60	60	0.70	006951	18-0
15-1	12- 75	75	1.00	007033	18-1
15-2	22-115	115	2.50	007118	18-2
15-3	25-155	155	5.20	007293	18-3
15-4	30-200	200	11.50	007378	18-4
15-5	30-250	250	18.60	007453	18-5

For larger sizes, please refer to our HYP range at the end of this catalogue.

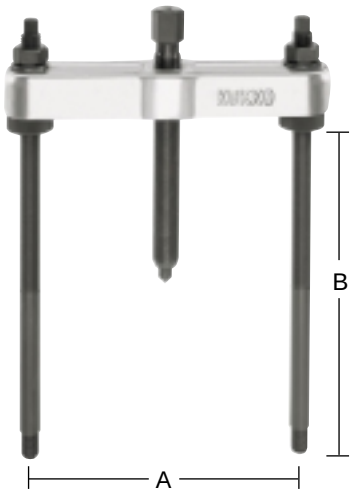
Separators, type series 17

with quick-action pressure screw

Especially easy to handle, because the separator jaws tighten quickly and centrically with the aid of a pressure screw.

Art. no.	Ø A mm	B mm	kg	4021176	
17-0	5- 60	60	0.95	008108	18-0
17-1	12- 75	75	1.50	008283	18-1
17-2	22-115	115	3.34	008368	18-2
17-3	25-155	155	6.90	008443	18-3

Pulling Tools



Pulling tools, type series 18

For use with a separator, screw the pulling bolts into the tapholes in the separator jaws.

Art. no.	A mm	B mm max.	kg			mm	Capacity (max.)	Suitable for separator no.
18-0	50-110	150	0.85	075599	612 130	14	3 to	15-0 + 17-0
18-1	60-150	200	1.70	075674	618 175	19	5 to	15-1 + 17-1
18-2	60-200	250	3.20	075759	621 170	22	7 to	15-2, 17-2, 13-2
18-3	80-300	300	6.20	005961	626 280	27	10 to	15-3, 17-3, 13-3
18-4	120-380	350	13.90	006043	633 425	27	15 to	15-4
18-5	150-440	400	20.70	075834	637 600	41	20 to	15-5

A hydraulic spindle no. 8-1-B or 8-2-M can be used in place of a mechanical pressure screw on models 18-4 and 18-5.

Extensions, type series 19

Art. no.	Length, mm	kg		Suitable for no.
19-1-P	100	0.30	169984	18-0 + 18-1
19-2-P	100	0.60	170041	18-2
19-3-P	100	0.60	170126	18-3
19-4-P	200	1.60	168321	18-4
19-5-P	200	2.00	152306	18-5

Complete sets of separators and pulling tools
in metal cases

Sets, type series 15
with standard separators

Art. no.		15-K	15-A	15-B	15-C	15-D
Contents:						
1 separator		15-0	15-1	15-2	15-3	15-4
1 pulling tool		18-0	18-1	18-2	18-3	18-4
1 pair of extensions		19-1-P	19-1-P	19-2-P	19-3-P	19-4-P
Capacity	mm:	60	75	115	155	200
Weight, incl. case	kg:	2.70	4.70	8.40	14.70	32.00
		007641	007521	007606	007781	007866

Sets, type series 17
with separators and quick-action pressure screw

Art. no.		17-K	17-A	17-B	17-C
Contents:					
1 separator		17-0	17-1	17-2	17-3
1 pulling tool		18-0	18-1	18-2	18-3
1 pair of extensions		19-1-P	19-1-P	19-2-P	19-3-P
Capacity	mm:	60	75	115	155
Weight, incl. case	kg:	2.9	5.0	9.2	16.1
		008856	008511	008696	008771

Pulling Tools - Accessories

V-belt pulley puller, type series 13

The jaws of this tool engage deeply in the groove of single or stepped pulleys to facilitate their removal.

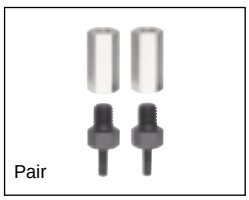
Uniform load distribution prevents damage to the pulley.

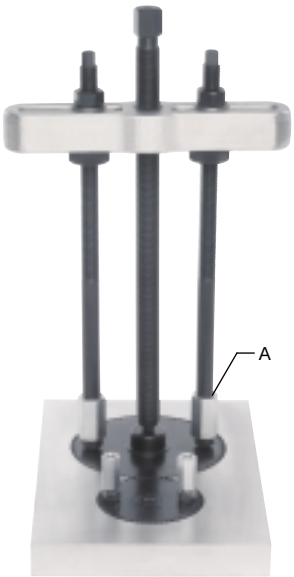
For pulling, screw this puller together with a suitable type-18 pulling tool (page 53).

Art. no.	For pulleys with nominal diameters of: mm	"	kg		Suitable for no.
13-2	40-150	$1^{3}/_{4}$-$5^{7}/_{8}$	1.90	169724	18-2
13-3	50-250	$1^{5}/_{8}$-10	11.00	169724	18-3

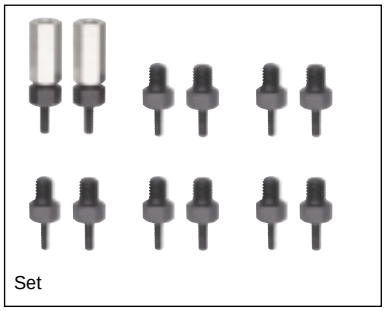
Screw adapters for pullers belonging to type series 18

These adapters serve in pulling parts with tapholes. They screw into the tapholes in the part to be removed and are joined to the pulling bolts of the corresponding puller by means of the connecting nuts supplied with the unit.





Art. no. pair of adapters (2 ea.) incl. connecting nuts	For thread sizes	kg		Suitable for no.
18-004 A	M 4	0.08	337383	
18-005 A	M 5	0.09	337468	18-0
18-006 A	M 6	0.09	337536	+
18-008 A	M 8	0.10	337611	18-1
18-010 A	M 10	0.10	337796	
18-012 A	M 12	0.10	337871	(A = M 10)
18-016 A	M 16	0.18	788574	
18-208 A	M 8	0.26	337383	
18-210 A	M 10	0.26	337468	18-2
18-212 A	M 12	0.30	337536	
18-214 A	M 14	0.32	337611	(A = M 14 x 1.5)
18-216 A	M 16	0.34	337796	
18-218 A	M 18	0.36	337871	
18-314 A	M 14	0.55	338601	
18-316 A	M 16	0.57	338786	18-3
18-318 A	M 18	0.60	338861	
18-320 A	M 20	0.62	338946	(A = M 18 x 1.5)
18-322 A	M 22	0.64	339028	
18-324 A	M 24	0.68	339103	



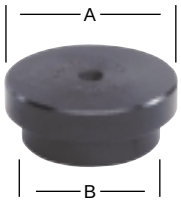
Screw adapters - complete sets for type series 18-0

Each set comprises 2 screw plugs per thread size and one pair of connecting nuts for fastening to the pulling bolts of the respective pulling tool..

Art. no. set	For thread sizes	kg		Suitable for no.
18-0-AS	M 4, M 5, M 6,M 8, M 10, M 12	0.36	337048	18-1
18-2-AS	M 8, M 10, M 12,M 14, M 16, M 18	0.94	337123	18-2
18-3-AS	M 14, M 16, M 18,M 20, M 22, M 24	1.00	337208	18-3

Pulling Tools - Accessories

Size	Ø A	Ø B	Art.-no.
1	25	19	**Y-01-17**
2	28	22	**Y-02-17**
3	32	25	**Y-03-17**
4	35	28	**Y-04-17**
5	41	32	**Y-05-17**
6	44	35	**Y-06-17**
7	48	38	**Y-07-17**
8	50	41	**Y-08-17**
9	54	44	**Y-09-17**
10	60	48	**Y-10-17**
11	64	50	**Y-11-17**
12	67	54	**Y-12-17**
13	70	57	**Y-13-17**
14	73	60	**Y-14-17**
15	78	64	**Y-15-17**
16	83	70	**Y-16-17**
17	90	76	**Y-17-17**



Step plate adapter sets

For supporting the spindle when center-bored parts are involved, e.g., hollow shafts, etc. Please refer to the table at left regarding the dimensions of individual adapters.

These adapters come in sets.

Adapter sets:

Art. no.	Size	For axle-bore dia. mm	"	kg	
Y-18-17	1-11	Ø 20-62	Ø $^{3}/_{4}$-2$^{1}/_{2}$	2.20	235078
Y-19-17	5-16	Ø 33-81	Ø 1$^{1}/_{4}$-3$^{1}/_{8}$	2.20	235153
Y-20-17	12-17	Ø 55-88	Ø 2$^{1}/_{8}$-3$^{1}/_{2}$	2.20	235238

Hydraulic rams for pulling tools

The great advantage of these powerful hydraulic screws is their ability to quickly and easily remove tight-fitting parts.
All you need to do is replace the mechanical ram with a hydraulic one.
The rated capacity is achieved at a torque of 45 Nm (8-1) or 30 Nm (8-2), respectively. Do not overtorque!

Art. no.	Capacity t	Stroke mm	kg		Suitable for no.
8-1-B	15	10	6.80	034596	18-4
8-2-M	20	10	10.00	034916	18-5

(cf. page 18 for operation)

Note:
Perfect alignment between the tools and the part to be pulled is very important. Misalignment would impose undo loads on the parts involved. This could damage to the tool or cause accidents. Before applying any hydraulic pressure, securely wrap the tool and workpiece in a protective blanket (page 92).

Auxiliary hydraulic rams, type series 9

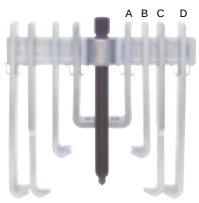
Highly efficient. Minimal space requirement.
These rams make a first-class auxiliary tool for boosting the working force of mechanical pullers applied to particularly stubborn components.
To avoid overloading, such rams should only be used with size-3 pullers or larger.

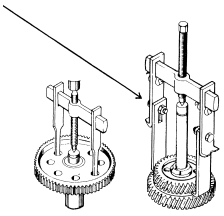
Art. no.	Dia., mm	Height, mm	Stroke, mm	Max. permissible load Pulling force	Torque	kg	
9-1	37	62	10	100 KN	35 Nm	0.85	005053
9-2	50	80	15	150 KN	50 Nm	1.60	005138

(cf. page 19 for operation)

„ECONOMY“ Pullers with Adjustable Arms

Uncomplicated, low-cost models for use in pulling gears, ball bearings, V-belt pulleys and similar parts. Suitable for outside and inside pulling, thanks to reversible, sturdy, one-piece, self-locking arms that tighten their grip under pressure to prevent slippage.





Two-arm pullers, type series 200

Art. no.	mm	"	mm	"	kg	4021176		mm
200-1	100	4	100	4	1.20	025846	614 137	13
200-2	150	6	100	4	2.00	025921	614 137	13
200-3	200	8	150	6	3.50	026003	621 210	22
200-4	250	10	150	6	5.50	026188	621 210	22
200-41	250	10	200	8	6.00	026263	621 210	22
200-5	350	14	150	6	6.40	026348	621 210	22
200-51	350	14	200	8	7.00	002243	621 210	22

Three-arm pullers, type series 301

Art. no.	mm	"	mm	"	kg	4021176		mm
301-1	100	4	100	4	1.60	84970	614 137	13
301-2	150	6	100	4	2.40	84988	614 137	13
301-3	200	8	150	6	4.20	84996	621 210	22
301-4	250	10	200	8	6.60	85001	621 210	22

Sales display and workshop stand with type-200 pullers

Art. no.	kg	4021176	Including puller nos.
200-ST	20.50	003073	200-1, -2, -3, -4, -51

When ordering a complete stand and set of no. 200-ST pullers, you pay only for the pullers - the stand is free.

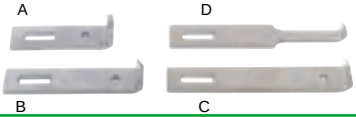
Farm and shop pullers with 8 multi-purpose jaws, type series 200-U

This economical and versatile model comes with four pairs of multi-purpose jaws that can be reversed for use in both inside and outside pulling. The puller comes with four pairs of arms for different jobs.

Art. no.	mm	"	mm	"	kg	4021176		mm
200-U	250	10	80-180	3-7 3/4	6.50	025433	621 210	22
200-UM	Puller no. 200-U in metal case				8.30			

The jaws interconnect by means of M 10 / 3/8" cap screws to yield a maximum length of 580 mm (23").

Jaws



Type	mm	"	kg	
A	80	3 1/8	0,50	**Short, broad jaws** with slots for cap screws; used for pulling off parts with tapholes
B	120	5	0,60	**Medium-length, broad jaws** with sharp talons
C	180	7 13/16	0,80	**Long, broad jaws** with sharp talons
D	180	7 13/16	0,60	**Long, slender jaws** for inside pulling and working in confined spaces

„ECONOMY“ Swivel-arm Pullers

„ECONOMY“ mechanical pullers

with reversible double-end S jaws

Art. no.	Type	mm	"	mm	"	kg	4021176		mm
208-0	2-arm	100	4	50-75-100	2-3-4	0.35	432248	610 110	8
209-0	3-arm	100	4	50-75-100	2-3-4	0.45	432323	610 110	8

Two-arm „ECONOMY“ mechanical pullers

with curved, length-adjustable arms

Art. no.	mm	"	mm	"	kg	4021176		mm
208-01	20-170	3/4-6 3/4	95-125	3 3/4-5	0.90	432408	614 160	17
208-02	20-230	3/4-9	150-190	6-7 1/2	2.40	432651	621 210	22

Three-arm „ECONOMY“ mechanical pullers

with curved, length-adjustable arms

Art. no.	mm	"	mm	"	kg	4021176		mm
209-01	20-170	3/4-6 3/4	95-125	3 3/4-5	1.30	432576	614 160	17
209-02	20-230	3/4-9	150-190	6-7 1/2	3.30	432736	621 210	22

„ECONOMY“ hydraulic puller

This puller is equipped with a type-8-1-F hydraulic pressure screw. (For method of operation see page 18.)

Art. no.	mm	"	mm	"	kg	4021176	Hydr.	Capacity t
209-2-B	500	20	228-300-400	9-12-16	12,50	432996	8-1-F 22-arm	15

The hydraulic screw can be replaced with a mechanical one to permit manual operation (order no. 11-3-0).

Note:

Perfect alignment of the hydraulic puller with the part to be withdrawn is very important. Misalignment would create extra bending forces and damage the tool or cause accidents. Before operating under pressure, part and puller should be wrapped securely in a **KUKKO**® protective blanket (page 92). The exerted forces must be carefully controlled during the pulling action. The max. permissible load is reached at a torque of 45 Nm, which must not be exceeded.

Driving Tools for KUKKO Push/Pull Devices

Art. no.	KN	max: to	Nm		mm
20-1	45	4.5	80	614 135	17
20-10	45	4.5	80	614 135	17
20-2	60	6	150	621 210	22
20-20	60	6	150	621 210	22
20-3	85	8.5	300	626 280	27
20-30	85	8.5	300	626 280	27
20-4	120	12	400	633 350	36
20-40	120	12	400	633 350	36

The user-information tables for the various mechanical push/pull devices (pp. 94 - 101) show the width across the flats of the pressure screw, the max. pulling capacity and the requisite torque (cf. examples at left), thus enabling selection of the best-suited driving tool for the job at hand. Torque wrenches are needed for the controlled application of pulling forces. The durably accurate STAHLWILLE Manoskop models listed here are fine-tuned to the application requirements of KUKKO's broad array of mechanical push/pull devices.

STAHLWILLE

Manoskop torque wrench with integral ratchet handle

These sturdy, compact, lever-type torque wrenches feature robust bodies, long-term accuracy, and a guaranteed ± 4 % margin of error. Their quick, convenient scales show international units (Nm and ft./lb.). These wrenches „break" automatically and feature a double-stop signal.

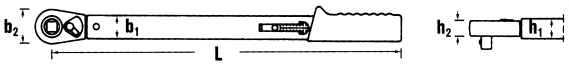
The tough hollow-steel body protects all the sensitive elements. Since the bending bar automatically snaps back to its starting position as soon as the set torque is reached, the measuring mechanism does not function in case of misuse - e.g., prying off jammed parts - and is therefore extensively immune to consequential damage.

Double-stop signal

The wrench signals its arrival at the set torque by „breaking" a few degrees and making a snapping sound.

Blitz adjuster:

Push down the lock on the handle (Fig. A), move the slide adjuster to the desired scale value (Fig. B), and release the lock. The setting is fixed.



Torque wrench, standard Manoskop series

with Blitz adjuster and reversing ratchet handle

Art. no.	Nm	ft.lb	Nm	ft.lb	"	b1 mm	b2 mm	h1 mm	h2 mm	L mm	kg	4021176
T-721-10	20-100	15-72,5	2.5	2.5	3/8	28	34,5	23	24	380	1.00	869730
T-721-30	60-300	50-220	10	10	1/2	28	44	23	27.5	531	1.71	869747

Knob adjuster:

Turn the large adjusting knob on the end of the handle until the desired torque appears in the window. This setting locks in automatically.

Torque wrench
Standard Manoskop series NF

with knob adjuster and reversible square ratchet handle for clockwise and counterclockwise torquing

Art. no.	Nm	ft.lb	Nm	ft.lb	"	b1 mm	b2 mm	h mm	L mm	kg	4021176
T-721-NF	160-800	120-600	20	20	3/4	46.5	76	42	1013	6.77	869754

Driving Tools for KUKKO Push/Pull Devices

Box-wrench socket sets

Made of alloyed C-steel, burnished
Hexagonal with SL drive, DIN 3124 / ISO 27225

All mechanical push/pull devices must be hand-operated (industrial safety regulations). KUKKO's box-wrench sockets feature a specially designed gripping profile that acts directly, and therefore edge-protectively, on the hexagonal faces of the puller forcing screws, thus enabling a perfectly slip-free fit, maximum effective force, and a long service life.

3/8" set □, type series 1021

for the pressure screws of **small KUKKO pullers**
and for 5-10 mm nuts, bolts and screws

Art. no.	6-piece set sizes	For use with driving tool	kg		
1021-K	8-10-12-13-14-17 mm	1020-00 + T-721-10	0.28	1	762321

1/2" set □, type series 1031

for the pressure screws of **medium-sized KUKKO pullers**
and for 10-16 mm nuts, bolts and screws

Art. no.	6-piece set sizes	For use with driving tool	kg		
1031-K	17-19-21-22-24-27 mm	1030-00 + T-721-30	0.85	1	764226

3/4" set □, type series 1041

for the pressure screws of **large KUKKO pullers**
and for 16-24 mm nuts, bolts and screws

Art. no.	6-piece set sizes	For use with driving tool	kg		
1041-K	24-27-30-32-36-41 mm	1040-00 + T-721-NF	2.80	1	766046

Ratchet handles for box-wrench sockets

made of alloyed C-steel, external squares to DIN 3120 A, with ball; internal squares to DIN 3120 C, with indent

3/8" reversing ratchet handle □, type series 1020

fine-toothed, with reversing lever for clockwise and counterclockwise pulling

Art. no.	⟷ mm	For use with socket set	kg		
1020-00	205	1021-K	0.35	1	760679

1/2" reversing ratchet handle □, type series 1030

fine-toothed, with reversing lever for clockwise and counterclockwise pulling

Art. no.	⟷ mm	For use with socket set	kg		
1030-00	265	1031-K	0.60	1	762659

3/4" reversing ratchet handle □, type series 1040

fine-toothed, with reversing lever for clockwise and counterclockwise pulling

Art. no.	⟷ mm	For use with socket set	kg		
1040-00	625	1041-K	2.55	1	764554

Tight-space Wrench No. 407

Set comes in a plastic module case for keeping in a tool trolley or a workbench drawer.

By innovatively applying to the open end the same bihexagonal, ratchet-like drive principle as that already featured by the box end of wrenches designed for working in tight spaces, we created this must-have set of problem solvers for getting at nuts, bolts and screws where there is little room to maneuver.

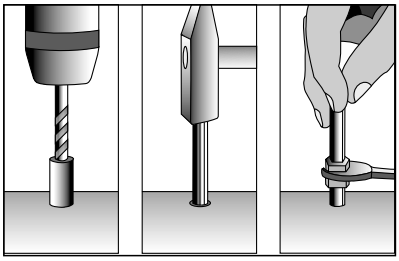
Benefits:
Access to places where no box-end wrench would fit.
Ratchet-like tightening in cramped spaces.
Quick engagement and release.
Edge-protective profile that zeros in on the arrises.

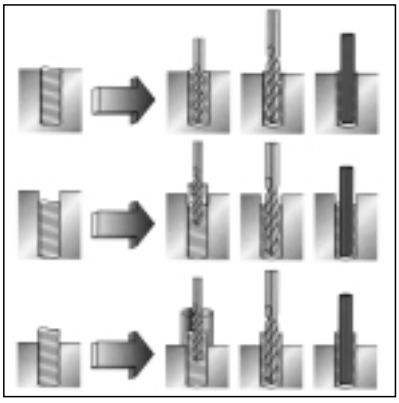
10-piece set of tight-space combination wrenches

with bihexagonal drive and same size of opening on both ends

Art. no.	Set (10 wrenches) sizes	kg		
407-A	10-11-12-13-14 mm 15-16-17-18-19 mm	0.90	1	865978

Bolt/Screw Extractor Set No. 49-U-B





For removing broken bolts and screws; set comprising bolt/screw extractors, tungsten carbide-tipped spiral bits and bit guides for easy tapping of broken-off connectors, even deep inside tapped bores.

This version includes a torsion stud with six axial-grip cutters for transmission of maximum force, and a slip-on nut with fully broached inner profile, so the applied torque takes effect in the immediate vicinity of the break.

Operation:
Use a tungsten carbide-tipped bit (cf. table) to drill a small hole in the part to be removed, and then drill out the hole to the size required for the appropriate torsion stud.

If the bolt/screw is protruding or situated deep within the tapped bore, place the appropriate bit guide (cf. summary table in lid of box) on the broken-off part, and insert the bit through the guide.

Then, pound the torsion stud into the bore, and install the appropriate internal nut. Turn the assembly counterclockwise to extract the broken bolt/screw from the tapped bore.

Art. no.	Designation	for bolts/screws mm	"	g	
49-U-B	Set (25-piece)	M 5-M 16	3/16 - 5/8	620	799136

Individual bolt/screw extractors, with accessories

The scope of supply includes a matching tungsten carbide-tipped bit and bit guide.

Art. no.	Bolt/screw	"	Spiral bit Pilot	Finish	Bit guides	g	
49-U-11	M 5-M 7	1/4	———	3.2 mm	A + B	26	799549
49-U-12	M 8-M 9	3/8	3.2 mm	4.8 mm	C + D	50	799624
49-U-13	M 10	7/16	4.8 mm	6.4 mm	E + F	86	799709
49-U-14	M 12	1/2	4.8 mm	8.0 mm	G + H	120	799884
49-U-15	M 14-M 16	5/8	6.4 mm	8.7 mm	I + K	170	799969

Bolt/screw extractors No. 49

Made of tough chrome-vanadium steel

For removing broken bolts, type series 49

Using a spiral bit (see table) drill a hole in the item to be removed. Then, insert the extractor and turn counterclockwise to extract.

German version (with narrow flutes), type series 49

Art. no.	For bolt sizes mm	"	Spiral drill bit mm	g		
49-1	3- 6	1/8 - 1/4	1.8	3	018008	5
49-2	6- 8	1/4 - 5/16	3.2	5	018183	5
49-3	8-11	5/16- 7/16	4.5	12	018268	5
49-4	11-14	7/16- 9/16	6.5	25	018343	5
49-5	14-18	9/16- 3/4	8.5	45	018428	5
49-6	18-24	3/4 -1	12.0	90	018596	5
49-7	24-33	1 -1 3/8	15.3	170	018671	5
49-8	33-45	1 3/8 -1 3/4	20.0	290	018756	5
49-9	45-52	1 3/4 -2 1/8	25.0	550	018831	5
49-A	Set of 5 extractors, sizes 1-5, in plastic case			125	018916	1
49-B	Set of 6 extractors, sizes 1-6 in plastic case			230	019098	1
49-C	Set of 8 extractors, sizes 1-8 in plastic case			720	019173	1

American version (with broad flutes), type series 49-0

according to GM and Opel specifications

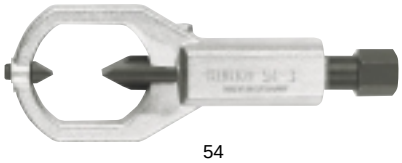
Art. no.	For bolt sizes mm	"	Spiral drill bit mm	g		
49-01	3- 6	1/8 - 1/4	1.8	4	490569	5
49-02	6- 8	1/4 - 5/16	3.0	6	490644	5
49-03	8-11	5/16- 7/16	4.0	15	490729	5
49-04	11-14	7/16- 9/16	6.0	26	490804	5
49-05	14-18	9/16- 3/4	8.0	46	490989	5
49-06	18-24	3/4 -1	12.0	91	491061	5
49-0-S	Set of 6 extractors, sizes 1-6, in plastic pouch			200	491146	1

„Super Traction" version, type series 49-T

This innovative extractor, with its optimized engagement geometry, combines the advantages of the finely fluted German version with those of bolt/screw extractors with angular gripping geometry, namely less requisite depths of bore and substantially higher transferable extraction torques.

Art. no.	For nut sizes mm	"	Spiral drill bit mm	g		
49-T-1	4- 5	1/8 - 1/4	2.0	3	758461	5
49-T-2	5- 7	1/4 - 5/16	3.2	7	758539	5
49-T-3	8-12	5/16 - 1/2	4.5	14	758614	5
49-T-4	12-14	1/2 - 5/8	6.5	27	758799	1
49-T-5	16-20	5/8 - 3/4	8.5	46	758874	1
49-T-A	Set of 5 extractors, sizes 1-5, in plastic case			125	758959	1

Nut Splitters

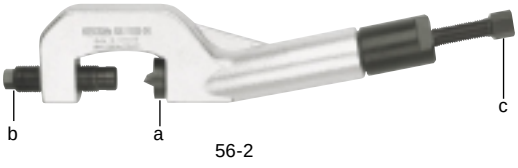


54

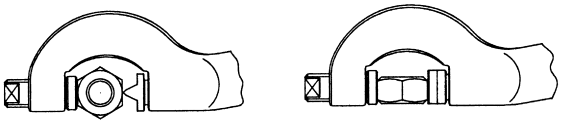
55

56-1

a) Chisel
b) Threaded anvil with spanner flats
c) Forcing screw



56-2



Note:

The flat design required for application does not permit automatic spring retraction of the chisel. For this reason, the chisel must be pushed back to the starting position by hand after each use.

1. Turn back the forcing screw (c).
2. Tighten the threaded anvil (b) with a wrench to push the chisel back into its starting position.

For use in touching up and cleaning damaged female and male threads. Each file has 8 different pitches. They are easy to use: simply place the thread file on the damaged thread to determine which pitch is needed. Then, use the tool in the manner of a file or scraper to effect the repair.

For splitting jammed or stripped nuts without damage to the bolt. Nut splitter chisels are wearing parts. Blunt, notched or broken chisels must be replaced immediately.

Mechanical nut splitters, type series 54

Double-edged models exerting twice the normal splitting force on irretrievable nuts in **quality classes 5, 6 and 8**.

Art. no.	For nut sizes (a.f.) mm	"	kg		Spare chisel Art. no.
54-2	10-27	$^{13}/_{32}$-1$^{1}/_{16}$	0.40	170614	54-2-M
54-3	17-36	$^{11}/_{16}$-1$^{7}/_{16}$	0.70	170799	54-3-M

Mechanical nut splitters, type series 55

For splitting irretrievable nuts in **quality classes 6** and below.

Art. no.	For nut sizes (a.f.) mm	"	kg		Spare chisel Art. no.
55-0	4-10	$^{5}/_{32}$-$^{13}/_{32}$	0.10	019906	55-0-M
55-1	10-18	$^{7}/_{16}$-$^{11}/_{16}$	0.22	020063	55-1-M
55-2	19-27	$^{3}/_{4}$-1$^{1}/_{16}$	0.44	020148	55-2-M
55-3	27-36	1$^{1}/_{8}$-1$^{7}/_{16}$	0.66	020223	55-3-M
55-4	32-50	1$^{5}/_{16}$-2	2.60	020308	55-4-M

Hydraulic nut splitters, type series 56

For splitting irretrievable nuts in **quality classes 5, 6, 8** and **10**.

Their offset shape makes these tools useful for confined spaces. Their hydraulic system minimizes the manual effort.

Art. no.	For nut sizes (a.f.) mm	"	kg		Spare chisel Art. no.
56-1	7-22	$^{9}/_{32}$-$^{7}/_{8}$	0.76	020483	56-1-M
56-2	22-36	$^{7}/_{8}$-1$^{7}/_{16}$	2.80	020551	56-2-M
56-1ERS	Spare parts set for 56-1			244223	
56-1REP	Factory overhaul and reconditioning for 56-1			237966	
56-2ERS	Spare parts set for 56-2			244308	
56-2REP	Factory overhaul and reconditioning for 56-2			238048	

Operating instructions for hydraulic nut splitters 56-1 and 56-2

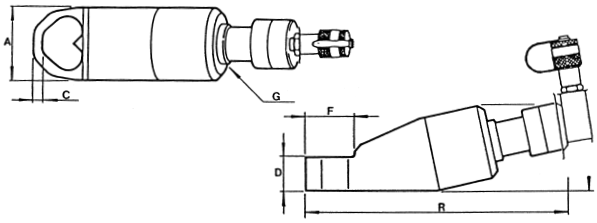
1. Place the chisel (a) in the starting position, with the cutting edge in axial alignment with the bolt and flat against one face of the nut.
2. Press the adjustable anvil up against the face of the nut opposite the chisel.
3. Split the nut by slowly turning in the pressure screw (c). The full hydraulic force is obtained by means of brief pauses.
4. The maximum force is achieved at a torque of 60 Nm (for a 56-1 splitter) or of 70 Nm (for a 56-2 splitter) and must not be exceeded, since any violation could lead to accidents and destruction of the tool.

Thread files, type series 97

Art. no.	Thread-repair file	kg		
97-1	For metric threads (ISO) with pitches of 0.8 - 1 - 1.25 - 1.5 - 1.75 - 2 - 2.5 - 3 mm	0.10	490231	1
97-2	For Whitworth and B.S.F. threads with pitches of 10 - 11 - 12 - 14 - 16 - 18 - 20 - 24 turns per inch	0.11	490316	1
97-3	For SAE (UNF/UNC) threads with pitches of 11 - 12 - 14 - 16 - 18 - 20 - 24 turns per inch	0.11	490491	1
97-4	For Whitworth „G“ pipe threads with pitches of 11-14-19-28 turns per inch	0.11	720253	1

Hydraulic Nut Splitters, Type series Y-57

Heavy-duty, pump-driven models



For splitting seized hexagon nuts belonging to any property class in connection with major maintenance and repair work on motor vehicles, machine tools, ships, structural steel assemblies and mining equipment, in lime/cement factories, petrochemical facilities, rolling mills, railway track machinery and much more.

High cutting capacity, can handle class-12.9 high-strength nuts (HRc 44); easy to use in any position. Available with a freely rotating angle connector (price on inquiry).

The compact design enables application in confined spaces and in poorly accessible places. Thanks to the hydraulic system, only little force need be applied. These nut splitters are equipped with a pull-back spring; the maximum hydraulic working pressure is 700 bar.

These nut splitters are supplied in a tote box, complete with spare chisels, spare bolts and a mounting tool.

The hydraulic pump needed for driving the splitter is a separate-order item (see below).

Art. No.	For nut sizes: SW mm	A.F."	kg	A	B	C	D	F	R		Spare chisel
Y-57-24	24-32	15/16 - 1 1/4	3.5	64	72	13	30	51	260	870675	Y-5724M
Y-57-32	32-41	1 1/4 - 1 5/8	5.0	75	82	16	36	65	286	870682	Y-5732M
Y-57-41	41-50	1 5/8 - 2 1/16	8.8	94	107	21	45	74	325	870699	Y-5741M
Y-57-50	50-60	2 1/16 - 2 3/8	13.5	106	122	24	54	90	366	870705	Y-5750M
Y-57-60	60-75	2 7/16 - 3	34.5	156	180	27	75	110	392	870712	Y-5760M

Max. operating pressure: 700 bar/10,000 psi

Hydraulic hand pump (suitable for all rams)

Sturdy, easy-running type with large oil volume. Single-stage with drain valve, pressure gauge connection and adjustable pressure limiting valve.

Art. No.	Useful oil volume: 700 cm³	Delivery per stroke: 2.7 cm³	kg	
YHP-320*	Hand pump only		5.50	045721
YHP-324	Hand pump with pressure gauge		6.00	045806
YHP-325	Hand pump with pressure gauge and hose		7.00	045981
YHP-326	Hand pump with pressure gauge and hose in metal case		13.00	046483

High-pressure hose (suitable for all rams)

Complete with anti-kink spring guard and 3/8" high-flow coupler

Art. No.	Standard length		kg	
YF-200	2000 mm	6 2/3 ft	1.0	045646

Hydraulic tiptoe pump

Two-stage model, smooth-running for 53 kg of foot-applied force, appropriate for 5-, 10-, 20- and 30-ton cylinders and all type-Y-57 nut splitters.

Art. No.	Description	Oil volume cm³	kg	
YFP-320	Tiptoe pump, 700 bar (70 MPa)	500	4.8	870880

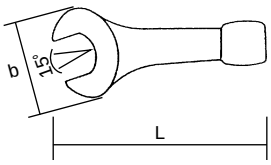
See page 91 for more hydraulic pumps and accessories.

Slogging Spanners for Large Nuts and Bolts

For use in tightening or loosening large nuts and bolts of the kind used in heavy industry, shipbuilding and similar areas. Suitable for use with striking hammers and pneumatic hammers.

Made of drop-forged tool steel with close-tolerance openings (DIN 475 / DIN 691) for extra-heavy duty; steel gray, oiled.

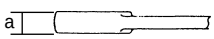
All slogging spanners are also available in spark-suppressing hard bronze or copper-beryllium versions.
(Prices and supply time frames on inquiry.)

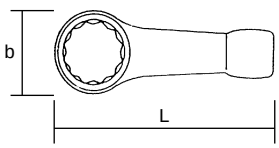


Open-end slogging spanners, type series 133 (DIN 133)

Art. No.	mm	L	a	b	kg	4021176	
133-24	24	170	15	55	0.42	867774	5
133-27	27	175	16	57	0.40	854804	5
133-30	30	195	17.5	69	0.82	854989	5
133-32	32	195	17.5	69	0.80	855061	5
133-36	36	195	17.5	69	0.78	855146	5
133-41	41	245	20	90	1.50	855221	1
133-46	46	245	20	90	1.40	855306	1
133-50	50	270	21	100	1.70	855481	1
133-55	55	310	24.5	115	2.70	855559	1
133-60	60	310	24.5	115	2.60	855634	1
133-65	65	340	27.5	125	3.50	855719	1
133-70	70	375	30	142	5.20	855894	1
133-75	75	380	30	142	5.10	855979	1
133-80	80	405	34.5	170	6.10	856051	1
133-85	85	410	34.5	175	7.00	856136	1
133-90	90	450	38.5	190	8.00	856211	1
133-95	95	450	39	195	8.80	856396	1
133-100	100	485	47	225	12.00	856471	1
133-105	105	500	47	225	13.00	865176	
133-110	110	500	47	225	12.80	865183	
133-115	115	525	52	245	19.90	865190	
133-120	120	525	52	245	19.70	865206	

Larger sizes and intermediate sizes also available.
Prices and supply time frames on inquiry



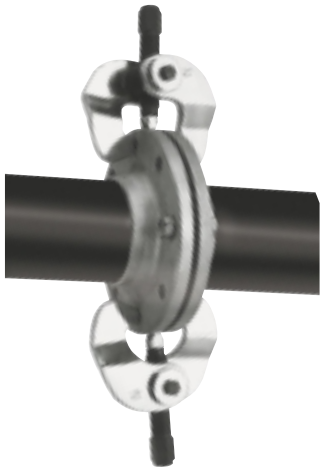


Ring slogging spanners, type series 406 (DIN 7444)

Art. No.	mm	L	a	b	kg	4021176	
406-24	24	180	16	47	0.51	856549	5
406-27	27	180	16	47	0.49	856624	5
406-30	30	185	16	51	0.48	856709	5
406-32	32	190	17	56	0.72	856884	5
406-36	36	195	19	58	0.68	856969	5
406-41	41	230	21.5	72	0.40	857041	1
406-46	46	235	22	74	1.30	857126	1
406-50	50	240	22.5	76	1.28	857201	1
406-55	55	270	26	94	2.80	857386	1
406-60	60	270	26.5	94	2.70	857461	1
406-65	65	280	28	100	2.50	857539	1
406-70	70	330	35	115	4.80	857614	1
406-75	75	330	35	115	3.40	857799	1
406-80	80	345	35	125	3.80	857874	1
406-85	85	380	38	140	5.10	857959	1
406-90	90	380	40	150	5.60	858031	1
406-95	95	380	42	150	6.40	858116	1
406-100	100	430	45	152	7.75	858291	1
406-105	105	430	47	175	9.70	858376	1
406-110	110	430	47	175	9.30	858451	1
406-115	115	430	47	175	8.50	858529	1
406-120	120	482	54	180	9.70	858604	1

Larger sizes also available.
Prices and supply time frames on inquiry

Flange Spreaders



Flange spreaders, type series 160

This practical tool enables quick and safe separation of flanged pipe connections for replacing gaskets or performing other maintenance work.

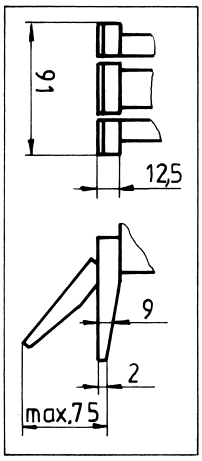
Upon completion of the work, the flanges are returned precisely to their original positions.

Flange spreader for DIN flanges				for standard raised-face flanges (US)					
Art. No.	Qty.	Pipe size mm	With bolts	Cast iron 125 lb"	Steel 150 lb"	Cast iron 250 lb	Steel 300 lb	kg	
160-1	2	80- 250	M 16-M 24	2-20	2-20	1-12	3/4 -12	5.20	025273
160-2	2	250-1200	M 24-M 48	16-48	18-24	12-30	12-24	16.50	025358

Operation:

Always use in pairs.
Remove two bolts from opposite sides (180° apart) of the flanged connection.
Insert the retaining hooks of the flange spreader into the holes, and tighten the forcing screws just far enough to keep the tool in position.
Remove the remaining bolts from the flanged connection.
Simultaneously tighten both forcing screws to uniformly spread the flange halves far enough apart to allow unhampered working. (Always liberally oil the threads of the screws.)

Once the maintenance work has been completed, turn back the screws to uniformly reunite the two flange halves.



Universal flange spreader, type 165

This universal tool enables quick and safe separation of flanges and similar assemblies of all types and sizes.

An integrated, reversing ratchet handle facilitates operation of the spreader, so no wrenches or other auxiliary tools are needed, and no time-consuming direction-of-pull reversal is required for tensioning and relaxation.

Art. No.	Qty.	Spread range (max.)	Spreading force	kg	
165-E	1	75 mm (3")	20KN (2 to)	6.10	491979

Operation:

First, remove the bolts from the flange. Then, insert the jaws of the spreader as far as possible in between the flange halves, and hold the spreader in position with one hand on the shaft. Use your other hand to ratchet the spreader far enough for it to hold itself in position.
Next, repeat the procedure on the other side of the flanged connection.
Once the other spreader is also tight enough to hold itself in position, spread the flange halves apart by alternately and uniformly tightening the screws of both spreaders.

Precautionary note:

Prior to actually beginning work, always take suitable measures to prevent accidents caused by flying and falling parts of the flanged connection (e.g., by providing supports or the like).
Flange spreaders are intended for use in pairs. Applying only a single spreader to one side of a flange exposes it to excess load and is liable to destroy the tool. The ratchet handle is sized for easy turning. If turning becomes difficult, check the spreader's seating, and adjust as necessary.
The use of extensions to strengthen the lever effect of the ratchet handle is inadmissible.

Special-purpose Automotive Tools

Battery terminal puller, type 48

One-hand automatic type for safe working in cramped spaces.

Art. No.	mm	"	mm	"	kg	
48	60	$2^3/_8$	40	$1^5/_8$	0.18	170539

Battery terminal puller, type 41-1

Basic model for pulling off battery terminals and other small parts

Art. No.	mm	"	mm	"	kg	
41-1	65	$2^9/_{16}$	65	$2^9/_{16}$	0.20	015038

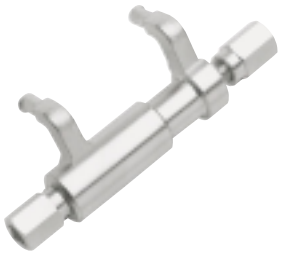
For larger models, see page 33.

Electrician's/Battery terminal puller

Professional model with self-centering puller claws for use in removing small bearings, pinions, battery terminals and similar parts.
Universally applicable.

Art. No.	mm	"	mm	"	kg	
43-1	60	$2^3/_8$	50	2	0.22	015458

For larger models, see page 23.



Clamp spring spreader, type 119-0 „VW"

For mounting and removing clamp springs on and from the spherical flanges of VW exhaust systems.

Art. No.	Suitable for	kg	
119-0	All 1979-1988 VW models	0.40	248368

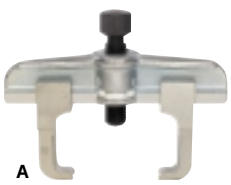
The tool can be actuated either with a 17 mm ($1^1/_{16}$") socket wrench or a $^3/_8$" recessed square drive.

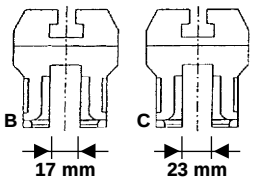
Set of clamp spring tension wedges, type 119-1

This set of tension wedges facilitates mounting and removal of clamp springs on and from all VW exhausts in their various states of accessibility. As an added advantage, the wedges remain behind in the removed clamp spring, so no renewed spreading operation is necessary prior to remounting.

Art. No.	Comprising			kg	
119-1	1 tension wedge	long	(no. 119 01)	0.60	365904
	2 tension wedges	short	(no. 119 02)		

For method of operation, see VAG instructions.





A) 6-spoke wheels
B) 5-spoke wheels (4-/6-cylinder)
C) 5-spoke wheels (8-cylinder)

Pullers for AUDI/VW cam wheels with 4 special-purpose claws

For pulling spoke-type cam wheels on TDI 4-, 6- and 8-cylinder diesel engines and on V6 and V8 gasoline engines from 1998 on.
The scope of supply includes 4 claws.

Art. No.	AUDI/VW	kg	
118-0	TDI (4/6/8 cyl.), V6, V8	1.20	860904

Special-purpose Automotive Tools

Oil seal installer, type 125

Suitable for all air-cooled VW engines.

Art. No.		kg	
125		1.00	171604

Screw the tool into the crankshaft, and pull the oil seal into the crankcase by tightening the nut.

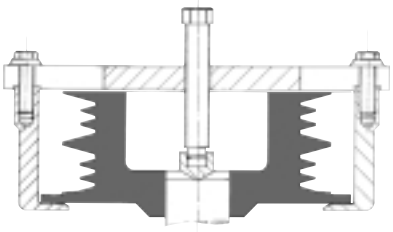
V-belt pulley puller, type 124

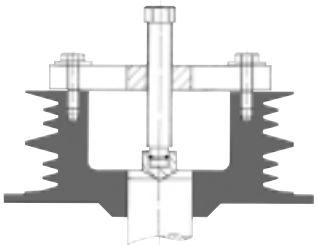
For all air-cooled VW engines.

Art. No.		kg	
124		0.30	171529

This puller attaches in a single operation. Its claws press automatically up against the collar of the V-belt pulley.

N





Puller set for passenger car V-belt pulleys (incl. multi-groove pulleys) with diameters up to 195 mm, in metal case

This tool enables quick and easy pulling of particularly tight-fitting V-belt pulleys of all kinds off of crankshafts, even in cramped spaces.

Art. No.		kg	
124-K	For V-belt pulleys with diameters up to 195 mm	2.84	736841

Set comprising:

1 two-arm pulley puller for V-belts with diameters up to 132 mm and a tight-space pulling arm for depths up to 68 mm

2 pulling-arm extensions for depths up to 88 mm

2 holding screws for pulling-arm extensions

1 puller head for V-belt pulleys with boltholes

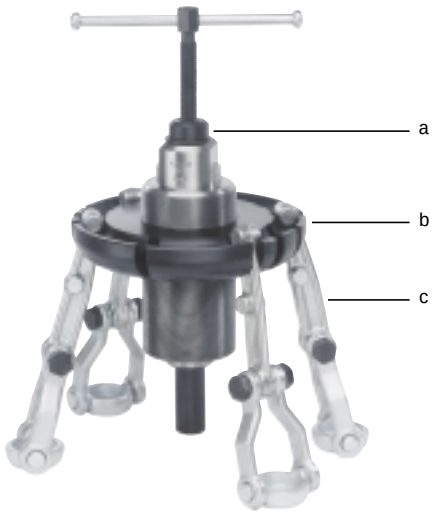
1 set (3 ea.) of forcing-screw pressure pads

Operation:

To pull a V-belt pulley without tapholes, slide the pulling arms in behind the pulley. The accompanying extensions enable accommodation of any and all working conditions (large head).

V-belt pulleys with diameters above 132 mm have tapholes sized M 8 or M 10, depending on the make. For any such pulley, the accompanying supplementary head accommodates standard M 8 or M 10 bolts of appropriate length (small head) that screw into the tapholes in the pulley. (The bolts are not included in the scope of supply.)

Special-purpose Automotive Tools



a) Hydraulic ram
b) Slotted disk
c) Pulling arm

10-1 10-3 10-5 10-6

Universal hydraulic hub pullers, type series 10

Universal application, immense pulling strength and easy operation are the main merits of these thoroughly tried & tested hub pullers.
The use of different-size slotted disks prevents damage to the wheel studs.
The swivel cup ends of the pulling arms also go easy on the wheel studs.

Guaranteed high performance and long service life

Operation:
First, mount the desired slotted disk on the hydraulic ram. Attach the pulling arms to the wheel studs and hook their other ends into the slotted disk. The pulling arms are designed for latching in at two different points, thus yielding two different lengths. Next, use a wrench to tighten the hydraulic ram firmly up against the axle and, finally, turn the bar handle on the head of the hydraulic ram to easily extract the hub.

Sets in metal cases

Art. No.	Contents of case		kg	4021176
10-A	1 hydraulic ram (20 tons)	No. 10-1	17.3	005626
for passenger cars,	1 slotted disk A	No. 10-3		
vans and light trucks;	6 pulling arms	No. 10-6		
bolthole	with			
dia. up to	6 pairs of insert rings			
250 mm (10")				
10-G	1 hydraulic ram (20 tons)	No. 10-1	24.0	005701
for same vehicles	1 slotted disk A	No. 10-3		
as 10-A,	1 slotted disk C	No. 10-5		
plus heavy trucks;	7 pulling arms	No. 10-6		
bolthole dia. up to	with			
350 mm (14")	7 pairs of insert rings			

Parts for pullers belonging to type series 10

Art. No.	Designation	kg	4021176
10-1	Hydraulic ram with 2 pressure pads	5.50	005213
10-3	Slotted disk A - 250 mm -	3.80	005398
10-5	Slotted disk C - 350 mm -	6.10	005473
10-6	Pulling arm (bolthole dia. 22 mm)	0.60	005541
143 006 11	Insert ring (bolthole dia. 14 mm)	0.10	
183 006 11	Insert ring (bolthole dia. 18 mm)	0.10	
810 000 17	35-mm pressure pad	0.13	
810 001 17	80-mm pressure pad	0.32	
10-ERS	Spare parts sets for type-10 pullers	1.10	244148
10-REP	Factory overhaul and reconditioning for type-10 pullers		237881

Mechanical universal hub pullers, type series 10

For truck wheel hubs with bolthole diameters up to 350 mm. Safe, accurate operation thanks to six extra-long, slip-proof, slot-controlled pulling arms. In case of a badly jammed hub, the head of the tightened forcing screw can be tapped with a hammer to free up the hub.

Art. No.	Bolthole diameter	Depth	kg	4021176	Spare arm
10-M	350 mm	150 mm	12.60	862311	No. 10-6

The forcing screw no. 633350 can be replaced with a hydraulic ram no. 10-1 to obtain a hydraulic hub puller. (See above, 10-G)

Special-purpose Automotive Tools

Universal hub pullers, type 38

For passenger cars, vans and trucks with bolthole diameters up to 250 mm (10").
The swivel-mounted cups bear evenly on the hub, thus preventing damage to the wheel studs

Art. No.	Description	kg			mm
38	With 5 puller arms	5.50	014383	626 180	27

This hub puller is also available in a hydraulic version with 8 tons of pull (art. no. 38-B; price on inquiry).

Universal hub pullers, type series 40

A robust puller for passenger cars, vans and trucks with bolthole diameters up to 225 mm. **Impact/shock-resistant design**

The spindle rests in a self-aligning threaded bushing that protects the thread if hammer blows against the spindle head are required for dislodging the wheel hub.

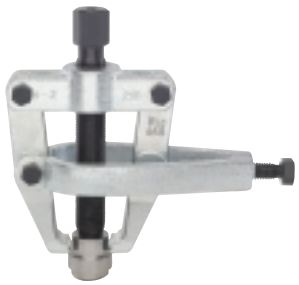
Art. No.	Bolthole diameters up to 225 mm (9")	kg	
40-3	With 3 pulling arms	4.20	014611
40-5	With 5 pulling arms	5.14	014956
40-3-1	Pulling arm for type-40 pullers	0.50	014796
40-3-8	Striking wrench for types 38 + 40	0.44	014871

Flange-type axle pullers, type 230

This tool is used for extracting flange axles with 4 or 5 studs on OPELs, FORDs, DATSUNs (ST-30000), AUDIs, VWs (POLOs, DERBYs, SCIROCCOs, PASSATs), NISSANs (SUNNYs, BLUEBIRDs, LAURELs, PATROLs, URVANs) and various other makes.

Once the puller has been attached, effect removal by means of sharp blows with the slide hammer.

Art. No.	For bolt dia.: mm	"	For bolthole dia.: mm	"	kg	
230	4-14	1/8-1/2	100-150	4-6	3.8	031038



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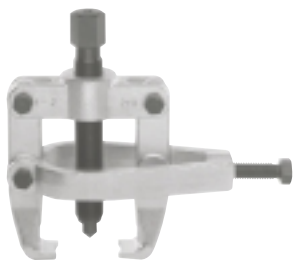
Special-purpose „VW" puller with pressure pad

for pulling the inner races out of the front wheel hubs of VW and Audi vehicles (VAG: V 10.1).

Art. No.	kg	
T-204-V	2.00	869662

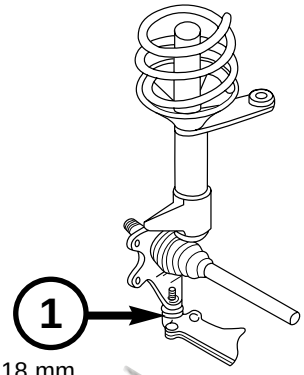


Steering arm puller, type series 204

Also for use in pulling ball bearings, gears, pinions and similar parts.
The clamp forces the arm tightly up against the part to be removed.

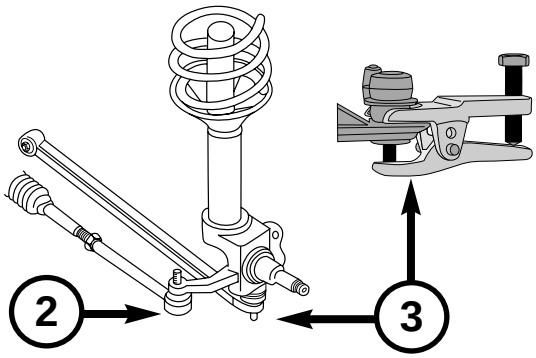
Art. No.	mm	"	mm	"	kg			mm
204-1	80	3 1/8	90	3 5/8	1.30	028243	618 105	19
204-2	100	4	100	4	2.00	028328	621 130	22
204-3	150	6	140	5 1/2	3.00	028403	623 170	24

Special-purpose Automotive Tools

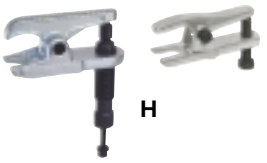


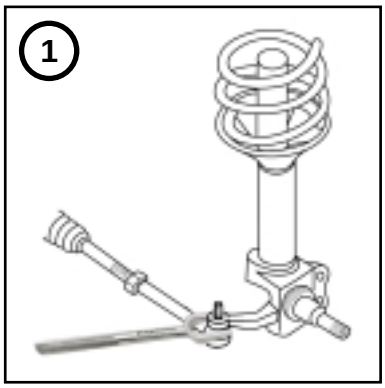
135-1 c = 18 mm
135-2 c = 23 mm
135-3 c = 29 mm
135-4 c = 39 mm
135-5 c = 45 mm

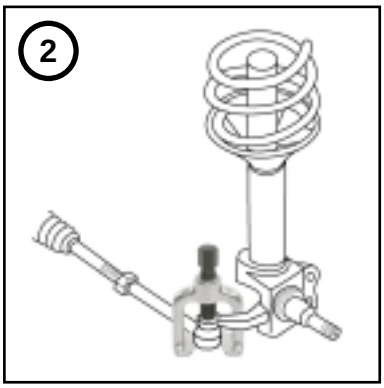
128-1 c = 18 mm
128-2 c = 23 mm
128-3 c = 29 mm
128-4 c = 40 mm
128-5 c = 46 mm

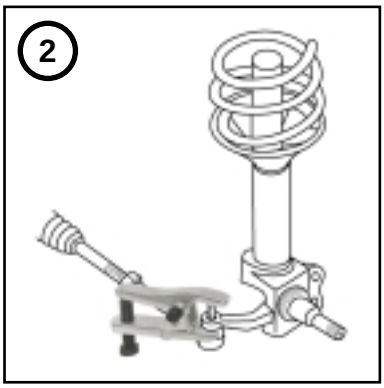


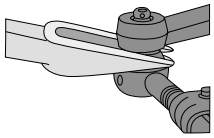
129-0 c = 20 mm
129-1 c = 18-22 mm
129-2 c = 16-22-32 mm
129-3 c = 34 mm
129-3-A c = 30 mm (ALU)
129-4 c = 40 mm
129-5 c = 36 mm
T-129-6 c = 25-32-47 mm (UNIV.)
129-3-H c = 34 mm 10 ton
129-4-H c = 40 mm 15 ton
129-5-H c = 36 mm 15 ton







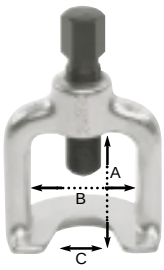




Fork separators, type series 135

These handy tools are frequently used instead of expensive special-purpose equipment. They greatly facilitate such front-axle jobs as:
removing seized ball pin joints from tapered seats
removing steering-gear arms, removing shock absorbers
and all other kinds of separating work.

Art. No.	Fork opening mm	"	kg	4021176
135-1	18	23/32	0.75	024856
135-2	23	15/16	0.85	024931
135-3	29	1 1/8	0.90	025013
135-4	39	1 5/8	1.20	025198
135-5	45	1 7/8	1.10	220531



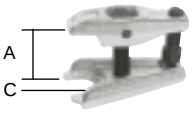
(Drop-forged steel)

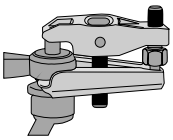
Ball joint extractors, type series 128

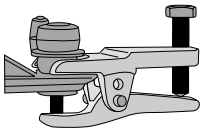
For forcing out ball journals when removing ball-and-socket joints. Quick & simple action.

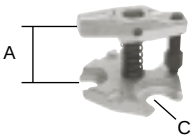
Art. No.	Height A mm	Width B mm	Opening C mm	"	kg	4021176		mm
128-1	38	36	**18**	23/32	0.30	024108	614 040	17
128-2	48	45	**23**	15/16	0.50	024283	616 055	17
128-3	60	60	**29**	1 1/8	1.00	024368	618 068	19
128-4	80	60	**40**	1 9/16	1.60	024440	623 110	24
128-5	100	75	**46**	1 13/16	1.80	024511	623 110	24

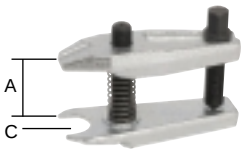
Special-purpose Automotive Tools











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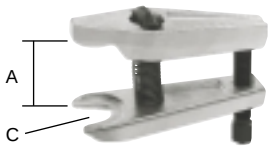
129-3
129-4



129-5

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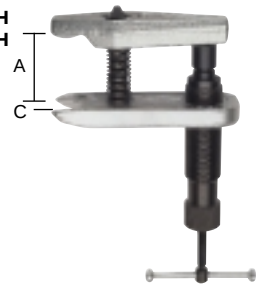
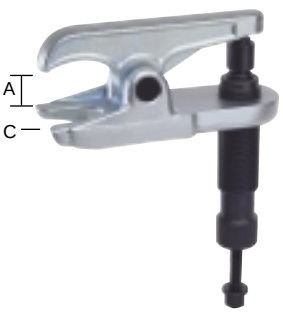
129-3-H
129-4-H



129-5-H



N

Extractors for DIN ISO 7803 ball joints, type series 129

Universal type for passenger cars and light commercial vehicles

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	kg	
129-1	18-22	$^{3}/_{4}$-$^{7}/_{8}$	19-27 mm	50	2	0.75	024696

Special model for the following passenger-car makes:

AUDI, BMW, Fiat, Ford, Daimler-Chrysler, Nissan-Datsun, Opel, Toyota, VW, Volvo, Renault, Rover

Art. No.	Opening C mm	"	For ball-joint sizes	Range A (two-stage) up to: mm	"	kg	
129-0	20	$^{13}/_{16}$	27-30 mm	50	2	1.10	410536

Suitable for all passenger cars, commercial vehicles and medium-sized trucks

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	kg	
129-2	16-22-32	$^{5}/_{8}$-$^{7}/_{8}$-1$^{1}/_{4}$	19-40 mm	70	2$^{3}/_{4}$	1.20	024771

Special model for passenger cars with aluminum chassis

e.g., AUDI A6 and A8, 1999 models, BMW series 3 and 5, and other types of vehicles with confined connecting spaces

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	kg	
129-3-A	30	1$^{3}/_{16}$	35 mm	65	2$^{9}/_{16}$	2.0	862649

For medium-size trucks, busses and construction vehicles

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	kg	
129-3	34	1$^{5}/_{16}$	35-40 mm	70	2$^{3}/_{4}$	2.50	270949

For heavy trucks, busses and construction vehicles

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	kg	
129-4	40	1$^{5}/_{8}$	50 mm	85	3$^{3}/_{8}$	2.60	271021

For medium-size and heavy trucks, busses and special-purpose vehicles

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	kg	
129-5	36	1$^{7}/_{16}$	40-50 mm	70	2$^{3}/_{4}$	3.8	865084

(for universal truck ball-joint extractors, see page 72)

Hydraulic ball-joint extractor, types series 129-H

For medium-size trucks, busses and construction vehicles

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	Capacity t	kg	
129-3-H	34	1$^{5}/_{16}$	35-40 mm	70	2$^{3}/_{4}$	10 ton	4.1	803253

For heavy trucks, busses and construction vehicles

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	Capacity t	kg	
129-4-H	40	1$^{5}/_{8}$	50 mm	85	3$^{3}/_{8}$	15 ton	4.2	803666

For medium-size and heavy trucks, busses and special-purpose vehicles

Art. No.	Opening C mm	"	For ball-joint sizes	Range A mm	"	Capacity t	kg	
129-5-H	36	1$^{7}/_{16}$	40-50 mm	70	2$^{3}/_{4}$	15 ton	4.6	865091

Special-purpose Automotive Tools

N

Extractor for DIN ISO 7803 ball joints

No. T-129-6 universal truck ball-joint extractor

with three interchangeable forcing forks for universal application to eccentric rods and tie rods on nearly all makes of vehicles, e.g., DAF, Iveco, MAN*, Mercedes, Skania, Volvo, etc.

Art. No.	Opening C	kg	4021176
T-129-6	25-32-47 mm	9.20	871191

*application in accordance with MAN 80.99601-6005

Disk Brake Tools

Disk brake pad remover, type 123

This tool enables removal of seized brake pads from the fixed caliper of disk brakes.

Art. No.	Suitable for	kg	4021176
123	Mercedes-Benz and other passenger car models with fixed caliper disk brakes	0.60	270789

Set of disk brake piston reset tools in metal case, push-back / turn-back unit

Including 6 adapters for universal accommodation of old- and new-model European and Japanese vehicles.

Art. No.		kg	4021176	
126-20	9-piece, with 6 adapters	2.00	509636	1
126-30	10-piece, with 7 adapters	2.10	891656	1

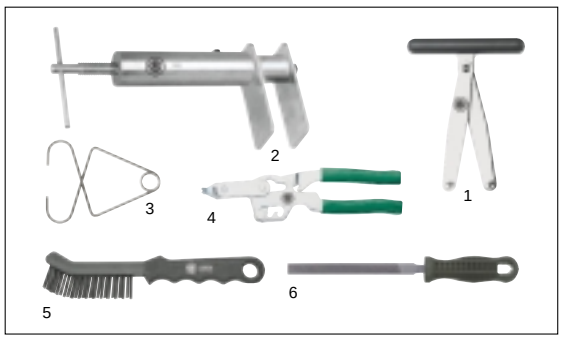
Operation:

If the vehicle has brake calipers with integrated parking brake, reset the brake piston by turning it back; for all other vehicles, reset by pushing it back.

1) Pressure screw — type 620-120
2) Guide bush — type 126-200
3) Pressure plate — type 126-201
4) Push-back adapter — type 126-202
   e.g., for corresponding models by VW-AUDI, SEAT, SKODA, FORD, BMW, MERCEDES, TOYOTA, NISSAN and MITSUBISHI
5) Turn-back adapter — type 126-203
   for models with 12 mm socket head caps screws, e.g., VW-AUDI, SEAT and SKODA
6) Turn-back adapter — type 126-204
   for e.g., VW-AUDI, SEAT, SKODA, FORD, VOLVO, ROVER (800), SAAB, JAGUAR (XJ6), PEUGEOT (405, 605), NISSAN-SUBARU
7) Turn-back adapter — type 126-205
   e.g., for MITSUBISHI, MAZDA, HONDA-Civic
8) Turn-back adapter — type 126-206
   e.g., for HONDA-Concerto, ROVER (200/400
9) Turn-back adapter — type 126-207
   e.g., for Citroen
10) Turn-back adapter — type 126-208
    for Opel, e.g., Vectra and Astra (contained only in set no. 126-30)

Special-purpose Automotive Tools

Disk Brake Tools



Complete set of brake caliper tools
Assortment no. 126-10

Art. No.		kg		
126-10	6-piece	2.30	534966	1

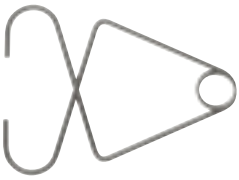
The tools belonging to this set are also available individually.

Type 126-01
Brake pad extractor

Art. No.	kg		
126-01	0.10	496271	5

Type 126-00
Disk brake piston reset tool
for the controlled, safe, straight resetting of disk brake pistons on passenger cars, motorcycles and trucks with fixed-caliper disk brakes.

Art. No.	kg		
126-00	1.70	487774	1



Type 126-02
Brake piston clamp
facilitates retention of reset brake pistons with brake hose connected during installation or removal of the brake caliper.

Art. No.	kg		
126-02	0.06	496356	5

Type 126-03
Piston-rotating pliers, for precision adjustment of the piston face recess on disk brakes, and for turning back the piston in case of brake calipers with integrated parking brake. Note: The piston must always be turned back in the direction of the piston face recess setting (radial direction of rotation). Turning in the other direction would screw the piston out of its cylinder bore.

Art. No.	kg		
126-03	0.28	496431	1

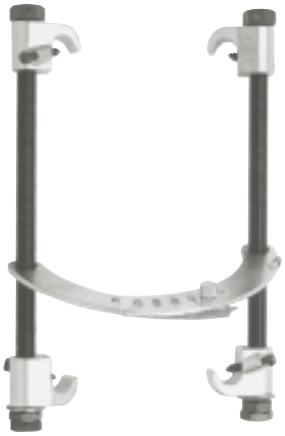
Type 126-04
Brake caliper brush, wire bristle brush for cleaning rubbings off of the brake caliper when changing pads.

Art. No.	kg		
126-04	0.08	534881	5

Type 127
Brake caliper file

Art. No.	Cross section mm	Length of cut mm	Cut	kg		
127	15 x 5	150	coarse	0.10	492051	2

Special-purpose Automotive Tools



Safety spring compressors, type series 65 and 66

These safe, universal spring compressors, with their modest space requirements, are especially easy to handle and, thanks to their adjustable connection clip, can be used for most standard helical springs with diameters ranging from 110 to 180 mm. They therefore present an economical alternative to far more expensive, complicated models.
These tools are in compliance with the „German Safety Regulations of Vehicle Maintenance“ (ZH 1/454) of the relevant German employer's liability insurance association and, following successful testing, have been awarded the Equipment Safety Certificate with the „GS“ mark.

„Universal“ spring compressor, type series 65

This handy universal tool is for use in replacing helical springs, in the assembled or disassembled condition, on cars weighing up to 2000 kg.

Art. No.	Working range depth		diametric capacity		kg	Load max.	
65-0	100-200 mm	4- 8"	110-180 mm	4 1/4-7"	2.5	2 to/20 kN	020636
65-1	100-300 mm	4-12"	110-180 mm	4 1/4-7"	2.8	2 to/20 kN	020711
65-2	100-400 mm	4-16"	110-180 mm	4 1/4-7"	3.1	2 to/20 kN	020896

Operation:
1) Adjust the connecting clip to the required helical spring diameter, and insert the pin to lock it in place.
2) Attach the claws of the spring compressor to the spring coils (normally, three coils are sufficient), and secure them against slippage by tightening the locking screws on the sides.
3) Compress or relax the helical spring by alternately and uniformly actuating both threaded spindles with the aid of hand tools (wrench, ratchet handle).

„MacPherson“ spring compressors, type series 66

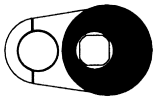
The ideal tool for use in replacing helical springs with up to 2500 N spring force on dismantled „MacPherson“ (or other) strut assemblies of the kind used on VWs, AUDIs, BMWs, Porsches, DATSUNs, RENAULTs, VOLVOs, TOYOTAs, MAZDAs and numerous other makes.

Art. No.	Working range depth		diametric capacity		kg	Load max.	
66-1	100-250 mm	4-10"	110-180 mm	4 1/4-7"	3.1	2.5 to/25 kN	020971
66-2	200-400 mm	8-16"	110-180 mm	4 1/4-7"	3.3	2.5 to/25 kN	170201
66-3*	100-400 mm	4-16"	110-180 mm	4 1/4-7"	4.2	2.5 to/25 kN	170386

*Type 66-3 consists of a type-66-2 spring compressor and two additional short threaded rods.

Operation:
1) Adjust the connecting clip to the required helical spring diameter, and insert the pin to lock it in place.
2) Attach the claws of the spring compressor to the spring coils (normally, three coils are sufficient). The three-point support ensures safe, quick operation.
3) Wrap a protective blanket (cf. page 92) around the strut assembly with the spring compressor attached.
4) Compress or relax the helical spring by alternately and uniformly actuating both threaded spindles with the aid of hand tools (wrench, ratchet handle).
For additional details on operation and use of these tools, please refer to the MacPherson manual entitled „MacPherson Strut“.

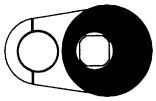
Special-purpose Automotive Tools



Stud pullers / inserters, type series 50

The knurled and grooved clamping wheel presses the stud tightly up against the internal serration.
During extraction, the stud is protected by the wrench and can not break off.
A particularly strong, practice-proven model is available for maximum stress & strain.

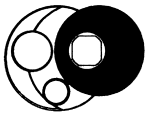
Art. No.	Working range mm	"	kg	mm	
50-1	5-10	3/16-3/8	0.10	17	019258
50-2	8-19	5/16-3/4	0.40	27	019333
50-3	18-25	3/4-1	0.60	36	019418



„Economy" stud pullers / inserters, type series 51

Handy „economy" models

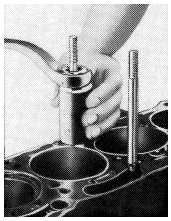
Art. No.	Working range mm	"	kg	mm	
51-1	5-10	3/16-3/8	0.36	19	019586
51-2	8-19	5/16-3/4	0.40	19	019661
51-3	18-25	3/4-1	0.50	19	019746

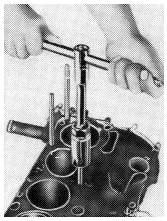


Stud pullers / inserters, type 52

This model is characterized by a wide working range. With its knurled wheel arranged at the bottom, it takes a tight grip on short stud ends.

Art. No.	Working range mm	"	kg	mm	
52	5-19	3/16-3/4	0.50	19	019821





Stud pullers / inserters, type series 53

This model can be used with a box or socket wrench even in very confined spaces.

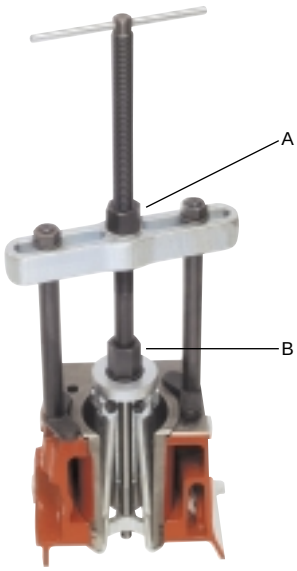
Stud pullers / inserters, type series 53

Art. No.	Description	kg	
53	Set of stud pullers, 6 mm, 8 mm, 10 mm and 12 mm, in a plastic case	0.78	342233

Individual stud pullers / inserters

Art. No.	Size Ø mm	kg	mm	■ mm	
53-6	6	0.14	21	1/2"	342318
53-7	7	0.15	21	1/2"	878091
53-8	8	0.14	21	1/2"	342493
53-10	10	0.22	21	1/2"	342561
53-12	12	0.22	21	1/2"	342646
53-16	16	0.30	21	1/2"	388774

Special-purpose Automotive Tools



Cylinder liner puller, type 16

A universal tool for extracting wet cylinder liners, bushes, etc. Comes with three spreaders (stars) for expanding the pulling jaws. The spreaders screw into the lower end of the spindle and are interchangeable to accommodate different diameters.

Operation:
First, screw the spindle of the counterstay into nut **B** of the puller. Then, place the counterstay on the engine block, and insert the puller into the threaded bushing.

Next, tighten nut **B** to engage the lips of the spreaders under the rim of the cylinder liner.

Finally, pull the liner by tightening spindle nut **A**.

Complete puller with counterstay and spreaders.

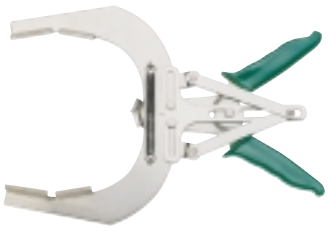
Art. No.	mm	"	kg	
16	60-155	$2^3/_8$-$6^1/_8$	7.80	008023

Piston ring compressors, type series 100

For tensioning piston rings when fitting pistons and cylinders.

Art. No.	mm	"	mm	"	kg	
100-0	40- 75	$1^1/_2$-3	50	2	0.13	428203
100-1*	57-125	$2^1/_4$-5	80	$3^1/_8$	0.28	022203
100-2	90-175	$3^1/_2$-7	80	$3^1/_8$	0.33	022388
100-3	90-175	$3^1/_2$-7	165	$6^1/_2$	0.64	022463

* For Mercedes-Benz passenger cars and other makes.



Piston ring spreaders, type series 101

For spreading piston rings.

Art. No.	mm	"	mm	"	kg	
101-1*	50-100	2-4	200	8	0.25	022531
101-2	90-150	$3^1/_2$-6	240	$9^1/_2$	0.37	022616

*For Porsche models 924, 944 and 928, all Daimler-Benz passenger cars and other models.

Piston pin drivers, type series 102

These tools enable easy, gentle removal and installation of piston pins without damage to the piston.

Art. No.	mm	"	Suitable for:	kg	
102-0*	38	$1^1/_2$	Motorcycle and other small engines	0.15	170874
102-1**	100	4	All automobile and motorcycle engines	0.15	022791

* Supplied with two supplementary pressure pads
** Supplied with three supplementary pressure pads

Special-purpose Automotive Tools

Valve lifter, type 103-1

With straight jaws

Art. No.	mm	"	kg	
103-1	70-230	2 3/4-9 1/8	1.20	022876

For small passenger cars.

N

Valve lifter, type 103-2

With straight and curved jaws

Art. No.	mm	"	kg	
103-2	40-230	1 5/8-9 1/8	1.35	022951

Standard model for small and medium-size passenger cars, e.g., BMW 316 and 318, FORD Fiesta and Escort, FIAT Panda, Uno and Tipo, etc.

Valve lifter, type 103-3

With straight and curved jaws

Art. No.	mm	"	kg	
103-3	85-290	3 3/8-11	3.25	023378

For large passenger cars and light commercial vehicles.

Strap wrench, type 104

Strap wrenches are useful wherever other wrenches are unsuitable due to the shape, surface finish, stability, etc. of the item to be fitted or removed.
The nonslip rubber fabric strap accommodates circular screw unions and sundry other shapes to ensure a slip-proof fit.

Art. No.	Noose range mm	"	kg	
104	180	7	0.28	023606

Oil filter wrenches, type series 105

With adjustable steel belt for oil filters and similar round parts.

Art. No.	Girth range mm	"	kg	
105-0*	70-110	2 3/4-4 3/8	0.32	023860
105-1**	70-110	2 3/4-4 3/8	0.22	175749

* Type 105-0 with sturdy handle for fast working
** Type 105-1 with space-saving ½" square recess for working in extremely confined spaces

Oil filter wrench, type 108

Extremely strong, robust oil filter prong wrench - patented American version - with profiled prongs for heavy-duty application. Universally employable, even in poorly accessible places. Accepts hexagon-insert and hexagon-socket wrenches.

Art. No.	Diametric capacity mm	mm	"	"	kg	
108-1	65-120	19	3/4	3/8	0.32	760426

Special-purpose Automotive Tools

Steering wheel pullers, type series 31

Extremely powerful tool for maximum loads.

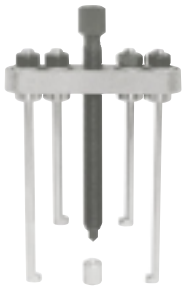
Art. No.	For steering-column diameters of: mm	"	kg	4021176		mm
31-1*	30-60	$1^1/_4$-$2^3/_8$	5.34	013881	621 210	22
31-2**	80-90	$3^1/_4$-$3^1/_2$	5.00	013966	621 210	22

* With 5 interchangeable insert rings
** With 1 interchangeable insert ring

Steering wheel pullers, type series 32

For steering wheels with three or four spokes.
With two rings - 1 x 100 mm and 1 x 150 mm diameter.
The pull rings have sliding rubber sleeves for protection.

Art. No.	Description		kg	4021176		mm
32-1	Light model	100 mm	1.70	014048	614 135	17
32-2	Heavy model	120 mm	2.30	014123	618 175	19



Steering wheel puller, type 33

For OPELs and other passenger vehicles with narrow pulling slots.
With 1 pair of short pulling arms for sports car style steering wheels, and 1 pair of long pulling arms for standard type steering wheels, incl. a protective cap for the threads of the pitman arm

Art. No.	kg	4021176		mm
33	0.76	014208	614 135	17


34-0


34-1

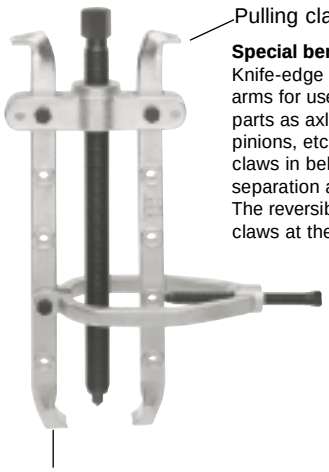
Universal steering wheel puller, type series 34

for new-model steering wheels with ample pulling slots (Opel, GM and various other passenger vehicles).
Including a protective cap for the threads of the pitman arm.

Type 34-0, model **GM 3**
with 1 pair of **short** pulling arms (87 mm),
e.g., for Opel Vectra B and Opel Astra F

Type 34-1, universal model
with 1 pair of **short** pulling arms (87 mm; see above)
and 1 pair of **long** pulling arms (135 mm),
e.g., for Opel Frontera

Art. No.	⟷ mm	kg	4021176		mm
34-0	35-90	0.80	865879	614 134	17
34-1	35-90	0.65	865886	614 134	17



Special benefits:
Knife-edge claws at one end of the pulling arms for use in loosening such close-fitting parts as axle bearings, ball bearing races, pinions, etc. The side clamp pushes the claws in behind such parts to allow their separation and extraction.
The reversible arms have normal pulling claws at the other end.

Separating pullers, type series 210

For a wide range of applications in which ordinary pullers would not be suitable.
With particularly space-saving arms for work in confined spaces.

Art. No.	mm	"	mm	"	kg	4021176		mm
210-1	95	$3^3/_4$	170	$6^3/_4$	2.60	030383	621 210	22
210-2	135	$4^3/_8$	270	$10^5/_8$	4.30	030468	623 325	24
210-3	150	6	325	$12^7/_8$	4.80	030536	623 325	24

Special-purpose Automotive Tools

Set of universal automotive repair shop tools in metal case

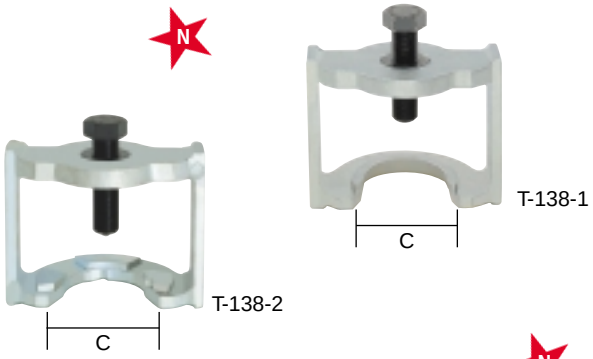
Art. no.		kg	
K-65-A	Set of universal automotive repair shop tools	17.80	412851

Contents

Type 65-1	Safety spring compressor	↔ 180 mm	↕ 300 mm
Type 129-0	Ball joint extractor	C 20 mm	↕ 50 mm
Type 135-1	Fork separator	C 18 mm	↕
Type 210-1	Separating puller	↔ 95 mm	↕ 170 mm
Type 230	Flange-type axle puller		
Type T-087-2	Dead blow mallet (0.70 kg)		
Type T-123-2	Special lever iron* (400 mm x 14 mm)		

* For use in prying off cylinder heads and gears, inserting and removing ball bearings, freeing up rusty parts and similar operations.

Trailer Tools



Pullers for brake linkage adjusters

For use in pulling jammed adjusters off of self-adjusting brake systems on truck trailers and semi-trailers

Art. no.	Suitable for the axles of:	Type of support:	Opening C	kg	
T-138-1	SAF/HALDEX	annular	64 mm	2.80	869587
T-138-2	BPW/Berg. axles	3 segments	64 mm	2.90	869594

To prevent damage and accidents, the puller's threaded bushing has a shear device that safeguards the puller in case of effective forces that would suffice to cause permanent deformation. (Spare threaded bushing: order no. 13810020)

T-140

Drivers for brass bushes in trailer tow bars

For driving worn, jammed brass bushes out of tow-bar eyes

Art. no.	For bushes:	kg	
T-140-1	30 x 36 x 100 mm	1.20	869617
T-140-2	28 x 34 x 80 mm	0.90	869624

T-141

Installers for brass bushes in trailer tow bars

For easy, gentle installation of new bushes in tow-bar eyes

Art. no.	For bushes:	kg	
T-141-1	30 x 36 x 100 mm	1.00	869631
T-141-2	28 x 34 x 80 mm	0.70	869648

T-142

Mounting tools for rubber steel bushes

For installing and removing rubber steel bushes in the spring eyes of pneumatic-spring axles, the tie rods of VB units, rollbar and square anti-sway bars, and the like

Art. no.	For bushes:	kg	
T-142-1	Ø 50-60 mm	3.50	869655

Special-purpose Automotive Tools

Pullers for Bearings in Passenger Cars

Bearing pullers for BMW models

Art. no.	Nomenclature:	Application range:	
T-073-1	**Tool set**	**BMW bearing puller set comprising:**	839313
T-GG-58	Basic tool	Type 58, accommodates the following grippers:	
T-G-581	Gripper	for 4-speed countershaft bearings	6304/7
T-G-582	Gripper	for 5-speed countershaft bearings	6305/7
T-GG-83	Basic tool	Type 83, accommodates the following grippers:	
T-G-831	Gripper	for differential pinion bearings	89449
T-G-832	Gripper	for the inner race in the differential housing	503349

Bearing pullers for DaimlerChrysler

Art. no.	Nomenclature:		
T-073-2	**Puller** Factory serial no.	**RILLEX for 530265/7 bearings** DB 123 589 023300	864889
T-073-4	**Tool set**	**Set of pullers for Mercedes bearings, comprising:**	839498
T-GG-48	Gripper	Type 48, accommodates the following gripper:	
T-G-481	Gripper	for transmission-output and drive shaft, type W 201 and W 124	11949
T-GG-58	Basic tool	Type 58, accommodates the following grippers:	
T-G-586	Gripper	for countershaft, front type W 124, 5-speed (G 1/18-5)	1380
		and countershaft, rear in 717,45 transmissions	
T-G-587	Gripper	for countershaft, rear in G1/17 transmissions	32006X
		and countershaft, front in G 1/18-4, G 1/18-5 transmissions	
T-GG-70	Basic tool	Type 70, accommodates the following grippers:	
T-G-701	Gripper	for countershaft, front in G1/ 18-4 and 18-5 transmissions	30305
T-G-702	Gripper	with extension for drive shaft bearings, type W 201 and W 124	14124

Special-purpose Automotive Tools

Pullers for Bearings in Passenger Cars

Bearing pullers for Ford models

Art. no.	Nomenclature:		
T-073-5	**Tool set**	**Set of Ford bearing pullers, comprising:**	839726
T-GG-58	Basic tool	accommodates the following grippers:	
T-G-587	Gripper	for bearings in the automatic transmission	32006X
T-G-588	Gripper	for bearings in rear axles type B, D, F, H, K	331699/ 11440373
T-G-589	Gripper	for bearings in rear axles type A und E	331139
T-G-590	Gripper	for bearings in the manual gearbox	NJ 2205
T-G-591	Gripper	for inner races in automatic transmissions	
T-G-592	Gripper	for bearings in front axles	SKF 328227
T-GG-70	Basic tool	accommodates the following gripper:	
T-G-703	Gripper	for bearings in rear axles type C and J	M 88043

Bearing pullers for VW / AUDI / SEAT / SKODA models

Set of VAG special-purpose bearing pullers

Art. no.	Nomenclature:		
T-073-6	**Tool set**	**Set of special-purpose VAG bearing pullers, comprising:**	839566
T-GG-58	Basic tool (VVA 930 200)	Type 58, accommodates the following grippers:	
T-G-581	Gripper (VVA 930 300)	for bearings in manual gearboxes 014 and 081 (Passat, Golf, Scirocco, Polo, AUDI 50/80/100)	6304/7
T-G-582	Gripper (VVA 930 500)	for bearings in manual gearboxes 015/083/088 (LT 28-35, Porsche 924, AUDI 100 up to 1988)	6305/7
T-G-583	Gripper (VVA 930 900)	for bearings in manual gearboxes 014/II (AUDI 80 GT, AUDI 100 from 1977, Passat GTI)	FAG 533365/6 SKF 362379
T-G-584	Gripper with extension	for rear-axle bearings (type 1, 2, 3, 181)	6306/8
T-G-585	Gripper with extension	for rear-axle bearings (type 1, 2, 3, 181 older models)	6306/7

Special-purpose Automotive Tools

Pullers for Bearings in Passenger Cars

VAG special-purpose pullers for bearings in manual gearbox 084

Art. no.	Nomenclature:		
T-073-7	**Pullers**	**for bearings in VAG 084 transmissions, comprising**	839641
T-GG-70	Basic tool	Type 70, accommodates the following gripper:	
T-G-701	Gripper	for bearings in manual gearbox 084 (Golf, Scirocco, Polo, AUDI 80)	30305

Set of VAG standard bearing pullers -factory version-

Art. no.	Nomenclature:		
T-074-1	**Tool set**	**Set of pullers for VAG standard bearings, comprising:**	839801
T-1582G	Basic tool (Z 411 142 WE)	accommodates the following grippers:	
T-15821	Gripper (Z 411 143 WE)	for bearings in the final drive, with (Golf) Syncro gearbox	32010X
T-15822	Gripper (Z 411 148 WE)	for drive-shaft bearings in manual gearbox 012 (AUDI 80, A 4, A 6)	563466 FAG
T-15823	Gripper (Z 411 149 WE)	for countershaft bearings in manual gearbox 02A (Passat)	300849
T-15824	Gripper (Z 411 150 WE)	for **large** pinion bearing in manual gearbox 02A, S1 + S2 (Passat)	29749
T-15825	Gripper (Z 411 151 WE)	for **small** pinion bearing in manual gearbox 02A (Passat)	518772
T-15826	Gripper (Z 411 152 WE)	for pinion bearings in automatic transmission 097 (AUDI 90/100/200)	89449
T-15827	Gripper (Z 411 156 WE)	for countershaft bearings in manual gearbox 084 or 085	521425
T-15828	Gripper (Z 411 157 WE)	for inner race in differential casing, automatic transmission 098 (T 4)	503349
T-15829	Gripper (Z 411 159 WE)	for inner race in automatic transmission gearbox 098 (T 4)	32017X
T-15830	Gripper (Z 411 160 WE)	for deep-groove ball bearing of flanged shaft, right, in AG 4 transmission	16006

Summary table Make/Model	Matching puller
VW, all except Audi	21-43
Audi 100	21-44
OPEL, all except Kadett	21-43
OPEL Kadett	21-41
FORD, all in-line engines	21-43
FORD, all V engines	21-40
BMW, all	21-41
Mercedes Benz (ball bearing) all with manual transm.	21-43
PORSCHE 928 (ball bearing)	21-43

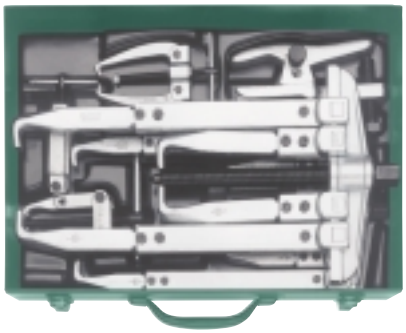
Needle bearing extractors, types 21-40 through 21-46

(For removing needle bearings from motor vehicle crankshafts, crankcases, etc. (cf. page 40 for operation).

Art. no.	Fits bearing for shaft diameters of: mm	"	mm	"	kg		
21-40	9,6-18	3/8-3/4	10	3/8	0,22	411526	22-1-22-2
21-41	11,5-19	29/64-3/4	12	1/2	0,22	186066	22-1-22-2
21-42	12,5-21	1/2-55/64	14	9/16	0,22	186141	22-1-22-2
21-43	14,5-22	37/64-7/8	15+16	5/8	0,22	186226	22-1-22-2
21-44	16,5-23	21/32-59/64	17+18	3/4	0,23	186301	22-1-22-2
21-45	18,5-24	47/64-61/64	20	13/16	0,23	186486	22-1-22-2
21-46	20 -25	51/64-1	22	7/8	0,23	186554	22-1-22-2

(For matching type-22 counterstays, see page 40.)

Automotive Workshop Tool Sets

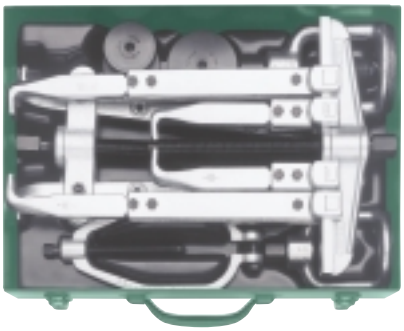


Set of pulling tools for passenger cars, in metal case

Art. no.		kg	
K-20204	Set of universal pulling tools for passenger cars	13.20	744433

Contents

Type 20-10	2-arm puller	↔ 120 mm	↕ 100 mm
Type 1-91-P	Pulling arm with claws		↕ 100 mm
Type 1-250-P	Long pulling arm		↕ 250 mm
Type 20-2	2-arm puller	↔ 160 mm	↕ 150 mm
Type 2-300-P	Long pulling arm		↕ 300 mm
Type 204-0	Bearing puller	↔ 50 mm	↕ 70 mm
Type 129-0	Universal ball joint extractor	C 20 mm	↕ 50 mm
Type 43-1	Small-parts puller	↔ 60 mm	↕ 50 mm



Set of pulling tools for trucks, in metal case

Art. no.		kg	
K-20210	Set of pulling tools for trucks	16.60	744501

Contents

Type 20-20	2-arm puller	↔ 200 mm	↕ 150 mm
Type 2-300-P	Long pulling arm		↕ 300 mm
Type 210-2	Separating puller	↔ 135 mm	↕ 270 mm
Type Y-09-17	Step plate adapter	44/54 mm	
Type Y-10-17	Step plate adapter	48/60 mm	
Type Y-14-17	Step plate adapter	60/73 mm	
Type 128-3	Ball joint extractor	C 29 mm	(60 x 60 mm)
Type 128-4	Ball joint extractor	C 40 mm	(80 x 60 mm)

Merchandisers

A full stand-alone sales dispenser, type „Product array“

KUKKO stand-alone sales dispensers are 1.00 m wide by 2.20 m high and can be lengthened at will with add-on elements. These perforated-panel elements are freestanding, and both sides can be used for display purposes. For use as two-sided sales dispensers, they require three large (0.5 x 1 m) and two small (0.3 x 1 m) supplementary perforated-plate panels.
The perforated-plate panels are made of 1.5-mm sheet steel.
An available assortment of tool-mounting hooks fit into the holes.
The base, which gives the wall its stand-up stability, offers a 1 meter long by 470 mm deep display deck.
A box sign integrated into the trim ensures good illumination and high attention value. The box sign is equipped with plug and socket for connection to the dispenser wall.
The approximately 2.5 m long mains power connecting cable with right-angle connector belongs to the stand-alone element's scope of supply.
KUKKO add-on elements are identical to the stand-alone element, except that they come with a single post, a single leg and no connecting cable, because each element attaches to the next. Thus, any add-on element can be converted to a stand-alone element by adding the appropriate parts.

Art. no.	Description	
EVLW-1	Stand-alone element (no tools)	448911
AVLW-1	Add-on element (no tools)	449093

Pulling and Extracting Tools with Hydraulic Rams
Pressure Range 5, 10, 20, 30 and 50 Tons

HYD

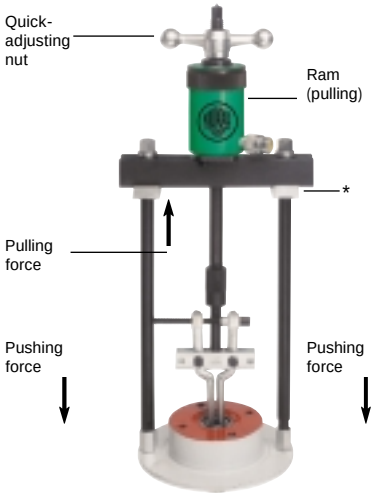
These sturdy hydraulic pullers will solve practically any conceivable pulling problem while considerably improving productivity in repair shops and industrial facilities. They facilitate heavy manual labor and minimize lost repair time and machine outages. By exerting a precisely defined hydraulic force, they enable careful, gentle application, frequently eliminating the need for time-consuming, expensive spare-parts procurement.

Performance data: Correspond with the maximum rated force and are adaptable to sundry conditions of use, safety requirements and operating instructions.
10 kN = 1 Mp = 1 t.

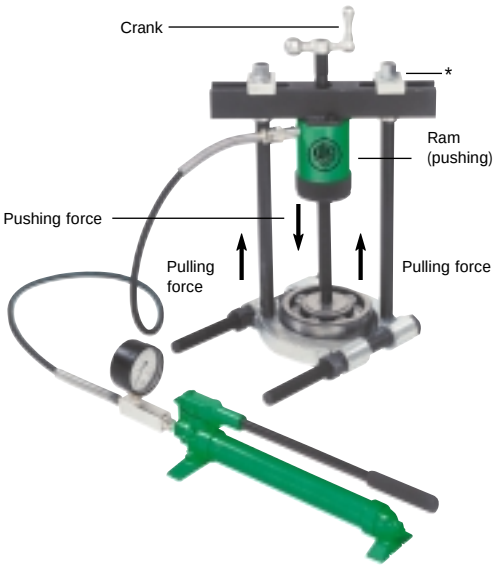
Dimensions: Stated subject to change without notice in the interest of technical progress.

Weights: Quoted weights are average weights and therefore non-binding.

*** Sliding plates are always arranged on the side opposite the ram.**



Type-Y28-180 pulling tool with type Y-221-E internal extractor



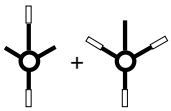
Type-Y38-180 pulling tool with type Y-315-5 separator and type-YHP-325 hand pump

Three-arm puller, type Y-38-206

Prior to applying any pulling force, wrap the pulling tool and the part to be pulled in a KUKKO protective blanket (see page 92).

Three-arm Pullers with Hydraulic Rams-Pressure Range 5 and 10 Tons

Three-arm pullers, type series Y08-208 and Y18-208



The heads of these pullers can be used with three arms or two. Fitted with two arms, these pullers can be used together with separating devices (see top left illustration). Accordingly, they have an extremely versatile range of application for pulling gear wheels, pulleys, ball bearings, etc. The heads have female threads to accommodate the collar thread of the hydraulic ram.

Prior to applying any pulling force, wrap the pulling tool and the part to be pulled in a KUKKO protective blanket (see page 92).

Choice of separators

To match puller type:	Separator type:
Y08-208	15-1, 15-2, 17-1, 17-2
Y18-208	15-3, 17-3, 15-4, 15-5

Pullers with hydraulic rams

Art. no.	mm		"	mm		"	Capacity Ton.	kN	Ram stroke mm	-	kg	4021176	Complete with ram type
Y08-208	250		10	215		$8^{1}/_{5}$	4.5	45	125	5	4.7	461774	YRE-050
Y18-208	500		20	500		20	10	100	250	10	18.8	461699	YRE-101

Pullers without hydraulic rams

Art. no.	Without ram	Standard threads	kg	4021176
Y05-208	Puller only	$1^{1}/_{2}$"-16 UN	3.0	172366
Y10-208	Puller only	$2^{1}/_{4}$"-14 UNS	11.8	172441

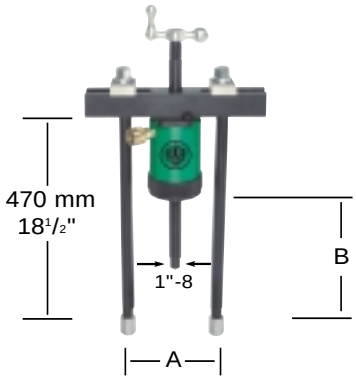
Pullers for combination with hydraulic rams of different make

Art. no.	Threads	For use with hydraulic rams by:	kg	4021176
Y05-207	M 40 x 1,5	Raripress	3.0	035586
Y05-208	$1^{1}/_{2}$"-16 UN	Enerpac, OTC, Powerteam, NIKE	3.0	172366
Y10-207	M 60 x 1,5	Raripress	11.8	035746
Y10-208	$2^{1}/_{4}$"-14 UNS	Enerpac, OTC, Powerteam, NIKE	11.8	172441

Push/Pull Devices with Accessories

10 kN = 1 Mp = 1 t

20 tons max.

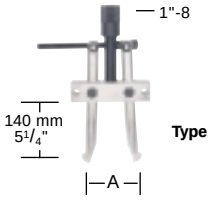


Type Y28-180 (19.5 kg)
Hydraulic push/pull device with hydraulic ram, crank, forcing screw, additional pressure pad YDB-27E and quick-adjusting nut.

Type Y20-180 (9 kg)
Push/pull device without hydraulic ram, crank, forcing screw, **without** additional pad, **without** quick-adjusting nut.

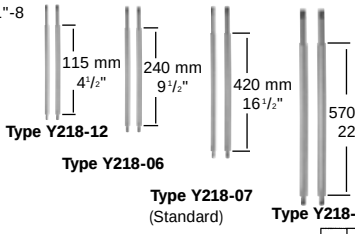
Spread max. (A)	Reach max. (B)
135-300 mm 5¼"-11¾"	300 mm 12"

Type Y-221-E (2.20 kg)
Internal extractor



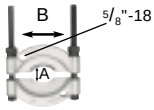
A
30-180 mm 1¼"-7"

Legs*



Type Y218-12
Type Y218-06
Type Y218-07 (Standard)
Type Y218-08

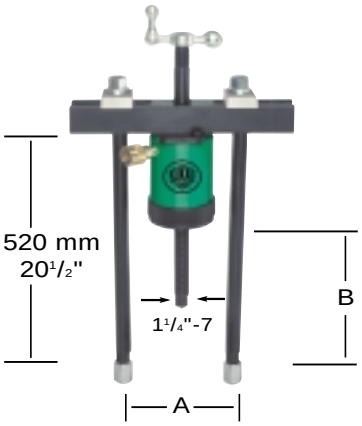
Type Y-215-2 (2 Kg)
Type Y-215-3 (5 Kg)
Type Y-215-4 (12 Kg)
Separators



No.	Y-215-2	Y-215-3	Y-215-4
A	22-115 mm ⅞"-4⅝"	25-155 mm 1"-6¼"	30-200 mm 1¼"-8"
B	115 mm 4⅝"	152 mm 6"	200 mm 8"

For load levels, see page 89.

30 tons max.

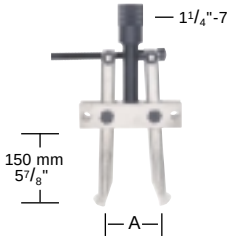


Type Y38-180 (38 kg)
Hydraulic push/pull device with hydraulic ram, crank, forcing screw, additional pressure pad YDB-33E and quick-adjusting nut.

Type Y30-180 (21 kg)
Push/pull device without hydraulic ram, crank, forcing screw, **without** additional pad, **without** quick-adjusting nut.

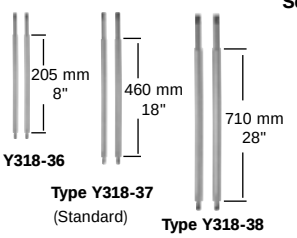
Spread max. (A)	Reach max. (B)
180-420 mm 7"-16¼"	330 mm 13"

Type Y-321-E (6.50 kg)
Internal extractor



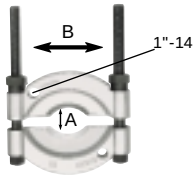
A
75-230 mm 3"-9"

Legs*



Type Y318-36
Type Y318-37 (Standard)
Type Y318-38

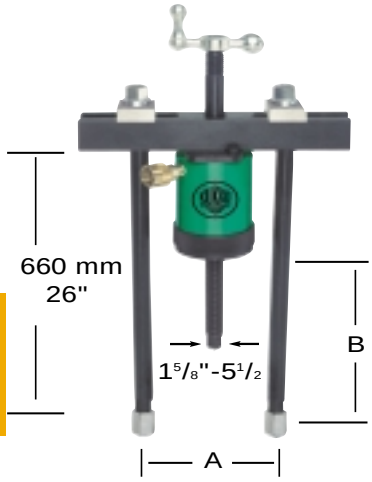
Type Y-315-4 (12 Kg)
Type Y315-5 (20 Kg)
Separators



No.	Y-315-4	Y-315-5
A	30-200 mm 1¼"-8"	30-250 mm 1"-10"
B	200 mm 8"	250 mm 10"

For load levels, see page 89.

50 tons max.

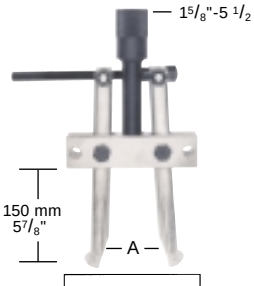


Type Y58-180 (82 kg)
Hydraulic push/pull device with hydraulic ram, crank, forcing screw, additional pressure pad YDB-55E and quick-adjusting nut.

Type Y50-180 (40 kg)
Push/pull device without hydraulic ram, crank, forcing screw, **without** additional pad, **without** quick-adjusting nut.

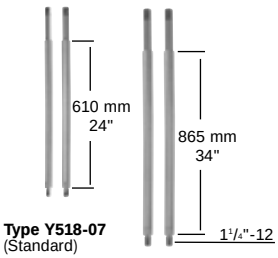
Spread max. (A)	Reach max. (B)
235-540 mm 9¼"-21"	400 mm 16"

Type Y-521-E (6.70 kg)
Internal extractor



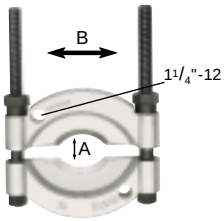
A
75-230 mm 3"-9"

Legs*



Type Y518-07 (Standard)
Type Y518-08

Type Y-515-5 (20 Kg)
Type Y-515-6 (36 Kg)
Type Y-515-7 (43 Kg)
Separators

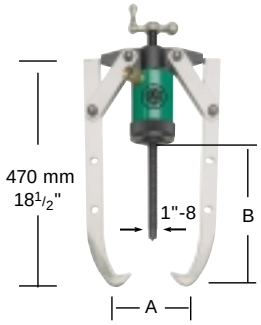


No.	Y-515-5	Y-515-6	Y-515-7
A	30-250 mm 1"-10"	75-330 mm 3"-13"	80-420 mm 3"-16¾"
B	250 mm 10"	330 mm 13"	420 mm 16¾"

For load levels, see page 89.

Two-arm and three-arm pullers

20 tons max.



Type Y28-205 (20.5 kg)
Two-arm puller
with hydraulic ram, crank, and forcing screw

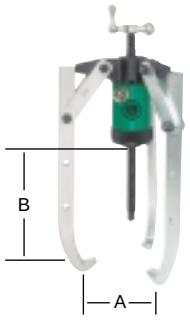
Type Y20-205 (11 kg)
Two-arm puller without hydraulic ram, crank, and forcing screw

This puller can also be used with separator **Type Y-215-3**

(See top photo, page 85.)

Spread max. (A)	Reach max. (B)
420 mm	300 mm
16"	12"

For load levels, see page 89.

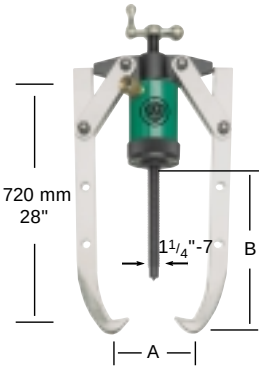


Type Y28-206 (27.5 kg)
Three-arm puller with hydraulic ram, crank, forcing screw and additional twin head

Type Y20-206 (16 kg)
Three-arm puller
without hydraulic ram, crank, without forcing screw, without additional twin head

Spread max. (A)	Reach max. (B)
500 mm	300 mm
20"	12"

30 tons max.



Type Y38-205 (39 kg)
Two-arm puller
with hydraulic ram, crank, and forcing screw

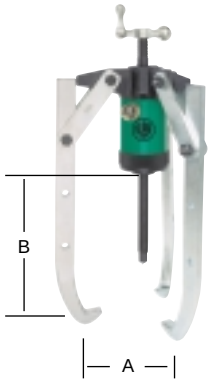
Type Y30-205 (25 kg)
Two-arm puller without hydraulic ram, crank, and forcing screw

This puller can also be used with separator Type **Y-315-5**

(See top photo, page 85.)

Spread max. (A)	Reach max. (B)
700 mm	520 mm
26"	20"

For load levels, see page 89.

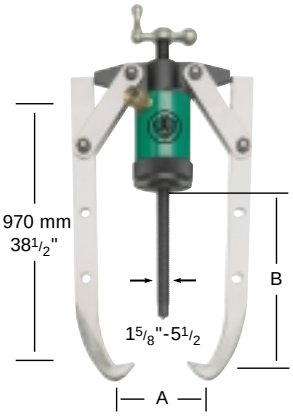


Type Y38-206 (58 kg)
Three-arm puller
with hydraulic ram, crank, forcing screw and additional twin head

Type Y30-206 (40 kg)
Three-arm puller
without hydraulic ram, crank, without forcing screw, without additional twin head

Spread max. (A)	Reach max. (B)
900 mm	520 mm
34"	20"

50 tons max.



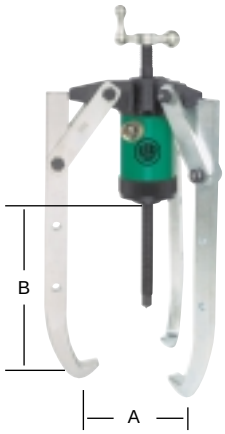
Type Y58-205 (88 kg)
Two-arm puller
with hydraulic ram, crank, and forcing screw

Type Y50-205 (50 kg)
Two-arm puller
without hydraulic ram, crank, and forcing screw

This puller can also be used with separators Type **Y-515-6** and **Y-515-7**
(See top photo, page 85.)

Spread max. (A)	Reach max. (B)
1000 mm	700 mm
36"	27 5/8"

For load levels, see page 89.



Type Y58-206 (123 kg)
Three-arm puller
with hydraulic ram, crank, forcing screw and additional twin head

Type Y50-206 (80 kg)
Three-arm puller
without hydraulic ram, crank, without forcing screw, without additional twin head

Spread max. (A)	Reach max. (B)
1200 mm	700 mm
44"	27 5/8"

Sets of Hydraulic Push/Pull Devices in Metal Cases

The strong metal cases simplify transport to and from the site and enable orderly, space-saving storage.

Set of universal hydraulic push/pull devices

	20 ton	30 ton	50 ton
Art. no.	**Y28-200**	**Y38-300**	**Y58-500**
⚖	83 kg	188 kg	335 kg
	302541	302626	302701
comprising:			
Hollow ram			
with threaded pusher pad	YRH-202	YRH-302	YRH-603
adjusting spindle	Y218-11	Y318-11	Y518-11
crank	Y218-10	Y318-10	Y518-10
Hand pump			
with pressure gauge and hose	YHP-325	YHP-325	YHP-325
Pulling tool	Y20-180	Y30-180	Y50-180
2 ea. extra legs	Y218-06	Y318-36	—
2 ea. extra legs	Y218-08	Y318-38	Y518-08
2 ea. leg connectors	Y218-31	Y318-41	Y518-31
Separator	Y-215-3	Y-315-5	Y-515-6
Inside puller	Y-221-E	Y-321-E	Y-521-E
pressure pad with smooth bore	YDB-27E	YDB-33E	YDB-55E
quick-adjusting nut	Y218-33	Y318-33	Y518-33
Puller, three-arm	Y20-206	Y30-206	Y50-206
head, two-arm	Y205-20	Y305-20	Y505-20

Hydraulic pulling-tool sets

	20 ton	30 ton	50 ton
Art. no.	**Y28-218**	**Y38-318**	**Y58-518**
⚖	54 kg	120 kg	203 kg
	036651	037641	038891
comprising:			
Hollow ram			
with threaded pusher pad	YRH-202	YRH-302	YRH-603
adjusting spindle	Y218-11	Y318-11	Y518-11
crank	Y218-10	Y318-10	Y518-10
Hand pump			
with pressure gauge and hose	YHP-325	YHP-325	YHP-325
Pulling tool	Y20-180	Y30-180	Y50-180
2 ea. extra legs	Y218-06	Y318-36	—
2 ea. extra legs	Y218-08	Y318-38	Y518-08
2 ea. leg connectors	Y218-31	Y318-41	Y518-31
Separator	Y-215-3	Y-315-5	Y-515-6
Inside puller	Y-221-E	Y-321-E	Y-521-E
pressure pad with smooth bore	YDB-27E	YDB-33E	YDB-55E
quick-adjusting nut	Y218-33	Y318-33	Y518-33

Hydraulic wheel-puller sets

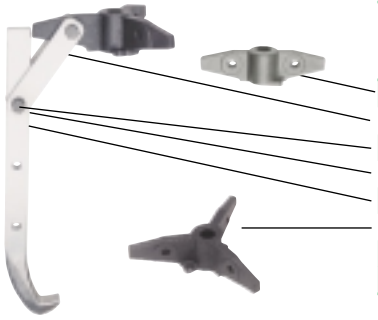
	20 ton	30 ton	50 ton
Art. no.	**Y28-256**	**Y38-356**	**Y58-556**
⚖	46 kg	96 kg	175 kg
	036811	037801	038631
comprising:			
Hollow ram			
with threaded pusher pad	YRH-202	YRH-302	YRH-603
adjusting spindle	Y218-11	Y318-11	Y518-11
crank	Y218-10	Y318-10	Y518-10
Hand pump			
with pressure gauge and hose	YHP-325	YHP-325	YHP-325
Puller, three-arm	Y20-206	Y30-206	Y50-206
head, two-arm	Y205-20	Y305-20	Y505-20

Spare Parts for Pulling Tools with Hollow Rams

10 kN = 1 Mp = 1 t

Description	20 tons	kg	30 tons	kg	50 tons	kg
Crank	Y218-10	0.50	Y318-10	0.90	Y518-10	1.80
Quick-adjusting nut	Y218-33	1.10	Y318-33	1.80	Y518-33	2.70
Forcing screw	Y218-11	1.70	Y318-11	3.10	Y518-11	7.00
Hollow ram	YRH-202	7.60	YRH-302	11.00	YRH-603	28.00
Ram fixation screws	(2 x)		(2 x)		(2 x)	
(DIN 912)	YP-2013		YP-3013		YP-5013	
Threaded insert	YDG-20E	0.40	YDG-30E	0.50	YDG-50E	0.70
Plain hole insert	YDB-27E	0.40	YDB-33E	0.50	YDB-55E	0.70
Serrated insert	YDM-20E	0.50	YDM-30E	0.70	YDM-50E	0.90
Hand pump	YHP-320	9.00	YHP-320	9.00	YHP-320	9.00
High-pressure hose	YF-200	1.00	YF-200	1.00	YF-200	1.00
Pressure gauge	YM-235	0.50	YM-235	0.50	YM-235	0.50

Pressure pads for supporting the stem, e.g., on hollow shafts: cf. page 55.



Description	20 tons	kg	30 tons	kg	50 tons	kg
Twin head	Y205-20	2.00	Y305-20	3.60	Y505-20	7.00
Strap	Y205-21	0.50	Y305-21	1.30	Y505-21	2.50
Strap screw	Y205-22	0.20	Y305-22	0.28	Y505-22	0.80
Strap nut	Y205-23	0.04	Y305-23	0.06	Y505-23	0.20
Grip arm (only)	Y205-25	3.20	Y305-25	8.00	Y505-25	16.00
Triple head	Y206-30	3.00	Y306-30	5.30	Y506-30	11.00
Grip arm, complete with straps, cap screws and nuts	Y205-00	4.50	Y305-00	11.00	Y505-00	22.00

Description	20 tons	kg	30 tons	kg	50 tons	kg
Leg nut	Y218-01	0.05	Y318-31	0.15	Y518-01	0.20
Slide plate	Y218-05	0.09	Y318-35	0.60	Y518-02	1.00
Slotted crossbar	Y218-03	4.50	Y318-03	11.00	Y518-03	30.00
Washer	Y218-02	0.03	Y318-32	0.10	same as Y518-02	1.00
Extra leg (1 ea.)	Y218-06	0.90	Y318-36	2.00	-	-
Standard leg (1 piece)	Y218-07	1.50	Y318-37	3.50	Y518-07	8.00
Extra leg (1 ea.)	Y218-08	2.00	Y318-38	5.00	Y518-08	10.50
Extra leg (1 ea.)	Y218-12	0.60	-	-	-	-
Leg end	Y218-09	0.10	Y318-39	0.30	Y518-09	0.50
Leg connector	Y218-31	0.10	Y318-41	0.30	Y518-31	0.40

Note:

Perfect alignment of the hydraulic puller with the part to be withdrawn is very important. Misalignment will create extra bending forces and damage the tool or cause accidents. Before operating under pressure, part and puller should be wrapped securely in a KUKKO® protective blanket (page 92). The exerted forces must be carefully controlled during the pulling action.

Load levels:

The following limits must be adhered to:

max. oper. pressure 700 bar/10.000 psi

Rating (10 kn = 1 Mp = 1 t)		20 ton	30 ton	50 ton
Puller, 3-arm	max. perm. load	20 ton	30 ton	50 ton
Puller, 2-arm		15 ton	25 ton	45 ton
Extractor with pulling bolt only		15 ton	25 ton	35 ton
Extractor with separator		15 ton	20 ton	30 ton
Extractor with internal puller		10 ton	20 ton	25 ton

Hydraulic Accessories

Hydraulic cylinder rams with collar threads

Single-acting with spring retraction (max. operating pressure: 700 bar/10,000 psi)

Art. no.	Capacity t	kN	Effective area	Stroke		Oil capacity cm³	Collar thread	Suitable for puller nos.	kg	
YRE-050	4,5	45	6.40 cm²	125 mm	5"	80	1½"-16 UN	Y05-208	2.20	046636
YRE-101	10	100	14.50 cm²	250 mm	10"	370	2¼"-14 UNS	Y10-208	2.20	046551

Hydraulic hollow rams,

Single-acting with spring retraction (max. operating pressure: 700 bar/10,000 psi)
Complete with threaded pressure pad

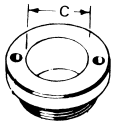
These hollow rams can be used both for pushing and for pulling. The pressure pads listed below screw into the female thread of the piston rod. The center spindle can be placed directly in the threaded pressure pad, or, if a plain hole pad is being used, fastened and adjusted with the quick-adjusting nut. If a closed, serrated pressure pad is used, the cylinder can function as a hydraulic jack.

Art. no.	Capacity t	kN	Stroke	Overall height retracted	extended	Oil capacity cm³	Center bore dia.	Ram outside dia.	Collar thread	Suitable for puller nos.	kg	
YRH-202*	20	210	50 mm	160 mm	210 mm	144	27 mm 1 1/16"	100 mm 4"	3 7/8"-12 UN (↕38 mm)	Y20-180 Y20-205 Y20-206	7.60	046711
YRH-206	20	210	150 mm	305 mm	460 mm	470	27 mm 1 1/16"	100 mm 4"	3 7/8"-12 UN (↕38 mm)	Y20-180 Y20-205 Y20-206	14.10	868276
YRH-302*	30	318	63 mm	178 mm	241 mm	294	33 mm 1 19/64"	115 mm 4 17/32"	4 1/2"-12 UN (↕42 mm)	Y30-180 Y30-205 Y30-206	11.00	046896
YRH-603*	57	574	75 mm	260 mm	335 mm	623	55 mm 2 11/64"	160 mm 6 5/16"	6 1/4"-12 UN (↕48 mm)	Y50-180 Y50-205 Y50-206	28.00	046971

YDM

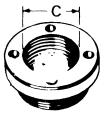
Serrated pressure pad (solid)

YDB



Plain hole pressure pad

YDG



* Tapped pressure pad

Pressure pads for hollow rams

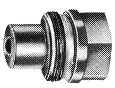
For use with:	Tapped Art. no.	C	Plain hole Art. no.	C	Serrated Art. no.	
YRH-202	**YDG-20E**	1" -8	**YDB-27E**	27 mm	**YDM-20E**	solid
YRH-302	**YDG-30E**	1 1/4"-7	**YDB-33E**	33 mm	**YDM-30E**	solid
YRH-603	**YDG-50E**	1 5/8"-5 1/2	**YDB-55E**	55 mm	**YDM-50E**	solid

* · Hollow rams come with tapped pressure pads as standard equipment.

YCR-400

Ram half coupler (sleeve)

YCH-604



Hose half coupler (plug)

High-flow couplings

(max. operating pressure: 700 bar/10,000 psi)

With their 3/8" high-flow couplings, the cylinders can be connected up to a pump in a few seconds. The complete coupling, comprising a coupling plug and a coupling sleeve with protective cap, provides a leakage-oil-free connection and rotates freely under pressure.

Operation and maintenance of hydraulic equipment

The operating pressure must never be allowed to exceed 700 bar (10,000 psi). All elements are equipped with 3/8" high-flow couplings as standard equipment. Use a grade of hydraulic fluid that is consistent with specifications ISO-VG-100 (DIN 51519) and/or HLP-100 (DIN 51525). The robust cylinders and pumps are maintenance-friendly. Thanks to their high-quality materials and close-tolerance workmanship, they also have long service lives.

Hydraulic Accessories

Max. operating pressure: 700 bar/10,000 psi

Hydraulic hand pump (suitable for all rams)

max. operating pressure: (10 kN = 1 Mp = 1 t)

Sturdy, easy-running type with large oil volume. Single-stage with drain valve, pressure gauge connection and adjustable pressure limiting valve.

Art. no.	Useful oil volume: 700 cm³	Delivery per stroke: 2.7 cm³	kg	
YHP-320	Hand pump (only)		5.50	045721
YHP-324	Hand pump with gauge		6.00	045806
YHP-325	Hand pump with gauge and hose		7.00	045981
YHP-326	Hand pump with gauge and hose in metal case		13.00	046483

High-pressure hose (suitable for all rams)

(max. operating pressure: 700 bar/10,000 psi)

Complete with anti-kink spring guard and 3/8" high-flow coupler

Art. no.	Standard length		kg	
YF-200	2000 mm	6 2/3 ft.	1.00	045646

Pressure gauge with adapter (for the hand pump)

Absolutely essential for monitoring the forces exerted by pulling tools with hydraulic pressures in excess of 20 tons.

Art. no.	Standard length		kg	
YM-235	0-700 Bar	0-10.000 psi	0.50	157769

N

Hydraulic tiptoe pump

Two-stage model, smooth-running for 53 kg of foot-applied force, appropriate for 5-, 10-, 20- and 30-ton cylinders and all type-Y-57 nut splitters.

Art. no.	Description	Oil volume cm³	kg	
YFP-320	Tiptoe pump, 700 bar (70 MPa)	500	4.8	870880

Electrohydraulic compact pump (suitable for all models)

with 3 meter remote-control cable

Art. no.	Description	kg	
YEP-320*	Electric pump, 700 bar (70 MPa) with 3 m electric connecting cable	12.00	834776

Technical data:

Supply voltage:	220 V	Supply pressure:	700 bar
Frequency:	50 Hz	Tank volume:	1900 cm³ (1,9 l)
Motor rating:	0.37 kw	Hose connector:	3/8"-18 NPT

* Suitable for all KUKKO hydraulic rams (and rams of other make) with a working pressure of 700 bar (70 MPa) and a 3/8" high-flow coupling system, and for type-series Y-57 nut splitters.

N

Hydropneumatic „TURBO“ pump

(suitable for all models)

With oscillating air motor for air pressures of 2.8 - 10.2 bar; required air volume: 0.34 m³/min, with 1/4" - 18 NPT air-hose connector

Art. no.	Description	Oil volume cm³	kg	
YLP-320	TURBO pump 700 bar (70 MPa)	2100	12.5	870903

Protective Blankets

Mechanical three-arm puller at work in combination with a T-UFP-1 protective blanket. Both the puller and the workpiece remain visible and, hence, controllable during the pulling process.

Disassembly and pulling work often involves the application of extreme forces. In such a situation, the stressed parts can tear loose, break apart, even practically explode and send debris flying around in all directions.
Such hazards can be countered with the aid of **KUKKO® protective blankets**. Made of highly flexible, highly tensile, oil-resistant material, these transparent blankets wrap around the tool and workpiece before the force is applied. They keep the job safe and enable close observation and control of the entire work sequence.
Protective blankets by KUKKO come in an imitation leather pouch that helps keep them in good condition and fully transparent by protecting them from the effects of prolonged, intensive exposure to sunlight or similar influences.

A hydraulic shop press set up with a T-UFP-2 protective blanket. The blanket fully encloses the work, and the work progress can be observed and controlled from start to finish.

Art. no.	Dimensions: width x length	For diametric capacities up to:	For depth capacities up to:	kg	
T-UFP-1	500 mm x 1100 mm 20" x 40"	350 mm 14"	400 mm 16"	0.80	445118
T-UFP-2	670 mm x 1500 mm 30" x 60"	500 mm 20"	500 mm 20"	1.50	445293
T-UFP-3	1300 mm x 4000 mm 51" x 156"	1200 mm 44"	1200 mm 44"	8.00	445378

Belt bands can be used to interconnect any number of like-size protective blankets to accommodate practically any workpiece and tool dimensions.

A hydraulic puller and separator at work, with security provided by a T-UFP-3 protective blanket. Both the pulling tool and part to be pulled remain fully visible and, hence, controllable during the pulling process.

KUKKO protective blankets help prevent accidents due to the sudden separation of parts and fragments during pulling and disassembly processes.
To that effect, the pulling tool and the part to be pulled are wrapped in a protective blanket, and the blanket fixed in position by tightening the belt bands, before any force is applied.
Thanks to the blanket's transparency, the pulling process can be closely observed and controlled from start to finish (cf. photos).
The blanket holds back shattered fragments and detached parts. In extensive test series, pressing forces up to 100 tons were used to break class-10 bolts. The force of impact - high enough to destroy the compound glass and casing of the pressure gauges - had no effect at all on the protective blankets. Subsequent material testing was not even able to document the slightest visible scratch.

Precautionary Notes and Helpful Hints

All tools must always be used for the intended purposes under the envisioned conditions and within their postulated limitations.

Dos

Check the condition of your tools at regular intervals, and replace any damaged or worn parts.

Keep the threads of all spindles, heads, etc. clean and well oiled.

Before you start work, acquaint yourself with the proper use of the tool or tools in question, with due attention to pertinent safety measures.

If anything at all is unclear about any of the above, it is best to call the factory for some firsthand advice.

Prior to starting work, make sure that the pulling tool is in good working order.

Double-check the tool for correct mounting, and monitor the forces incidental to the pulling process.

Never violate the maximum load data prescribed for the tool in question. Use a torque wrench (page 58; for mechanical/pressure-screw-driven tools) or a pressure gauge (hydraulic/pump-driven tools) to keep tabs on the applied forces. (page 91)

If the tool appears to be overloaded, works sluggishly, or is otherwise negatively conspicuous, interrupt the pulling process, and replace the tool with a larger model.

Always wrap the pulling tool and the workpiece in a protective blanket as a precaution against the potential effects of sudden release (cf. page 92).

Always wear suitable personal protective equipment, including protective goggles.

Don’ts

Never use an electric- or pneumatic-powered impact/hammer drill for driving a pulling tool.

Never use extensions to increase the applied torque.

Never alter a pulling tool or related product in any way.

Since heat detracts from the thermal properties of steel, and since some parts require heating to facilitate their removal, remember to never heat the pulling tool along with the part.

Note

Careful maintenance will guarantee the serviceability and long useful life of your pulling tools..

Guarantee

For all KUKKO products

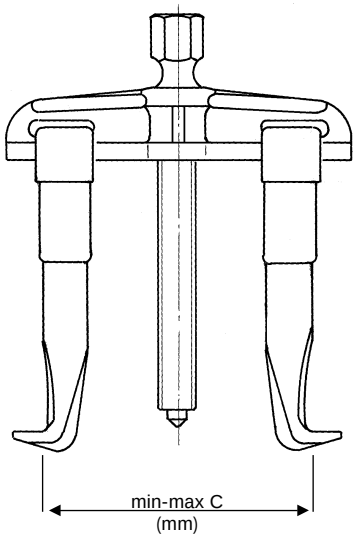
Any product provenly displaying a defect of material or fabrication - subject to our examination - will be replaced or repaired free of cost

Supply warranty

Wearing parts, e.g., nut-splitter chisels, threaded spindles and extra-slender pulling arms for confined spaces, with accordingly limited loadability, are always kept on stock and available for immediate delivery.

User Information

Pullers with mechanical pressure screws



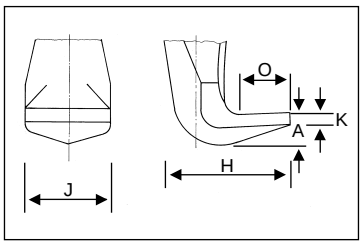
20

Art. no.	KN	max: to.	Nm		mm	mm		K mm	J mm	O mm	H mm	A mm
20-1	45	4.5	80	614 135	17	70-140	1	3	20	13	31	8
20-10	45	4.5	80	614 135	17	70-180	1	3	20	13	31	8
20-2	60	6	150	621 210	22	100-220	1	4	24	18	40	9
20-20	60	6	150	621 210	22	100-260	1	4	24	18	40	9
20-3	85	8.5	300	626 280	27	180-340	1	5	35	30	67	20
20-30	85	8.5	300	626 280	27	180-440	1	5	35	30	67	20
20-4	120	12	400	633 350	36	200-590	1	5	35	30	67	28
20-40	120	12	400	633 350	36	200-710	1	5	35	30	67	28

20-AV

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm	A mm
20-4-AV	120	12	400	633 500	36	200- 590	2	4	24	43	90	28
20-40-AV	120	12	400	633 500	36	200- 710	2	4	24	43	90	28
20-5	150	15	650	637 600	41	340-1000	2	8	60	52	110	40

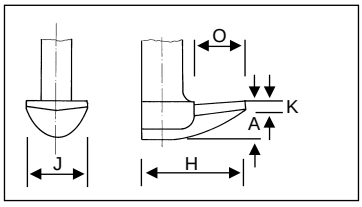
20-PLUS



1

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm	A mm
20-1+	45	4.5	80	614 135	17	70-140	1	3	20	13	31	8
20-10+	45	4.5	80	614 135	17	70-180	1	3	20	13	31	8
20-2+	60	6	150	621 210	22	100-220	1	4	24	18	40	9
20-20+	60	6	150	621 210	22	100-260	1	4	24	18	40	9
20-3+	85	8.5	300	626 280	27	180-340	1	5	35	30	67	20
20-30+	85	8.5	300	626 280	27	180-440	1	5	35	30	67	20

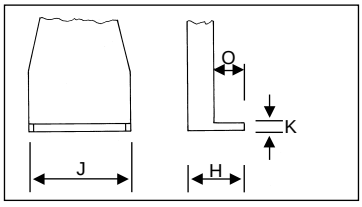
20-S



2

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm
20-1-S	25	2.5	35	614 137	13	70-140	3	2	28	7	18
20-10-S	25	2.5	35	614 137	13	70-180	3	2	28	7	18
20-2-S	50	5	120	621 211	17	100-220	3	4.5	32	15	30
20-20-S	50	5	120	621 211	17	100-260	3	4.5	32	15	30
20-3-S	70	7	220	626 281	19	180-340	3	6.5	40	17	40
20-30-S	70	7	220	626 281	19	180-440	3	6.5	40	17	40

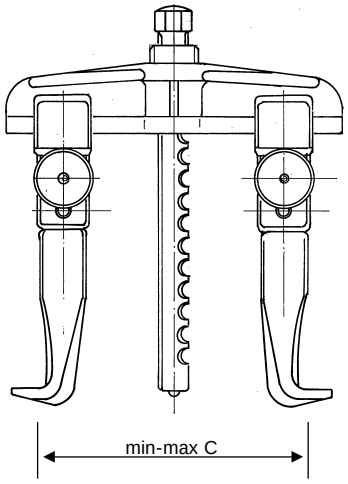
20-PLUS S



3

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm
20-1+S	25	2.5	35	614 137	13	70-140	3	2	28	7	18
20-10+S	25	2.5	35	614 137	13	70-180	3	2	28	7	18
20-2+S	50	5	120	621 211	17	100-220	3	4.5	32	15	30
20-20+S	50	5	120	621 211	17	100-260	3	4.5	32	15	30
20-3+S	70	7	220	626 281	19	180-340	3	6.5	40	17	40
20-30+S	70	7	220	626 281	19	180-440	3	6.5	40	17	40

Dimensional details are only approximate and are given subject to pertinent modifications and technical progress.



20-Q

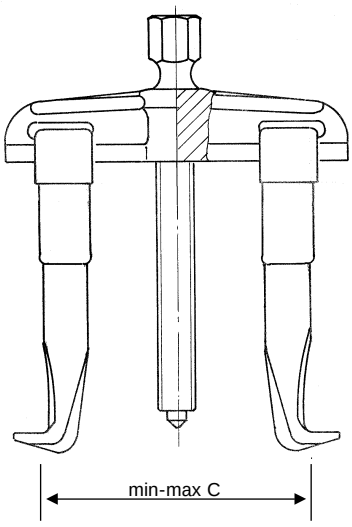
Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm	A mm
20-10-Q	30	3	80	612 165	13	70-180	1	3	20	13	31	8
20-20-Q	50	5	100	615 240	17	100-260	1	4	24	18	40	9
20-3-Q	70	7	200	622 320	19	180-340	1	5	35	30	67	20

20-QS

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm
20-10-QS	25	2.5	75	612 165	13	70-180	3	2	28	7	18
20-20-QS	50	5	100	615 240	17	100-260	3	4.5	32	15	30
20-3 -QS	70	7	200	622 320	19	180-340	3	6.5	40	17	40

30

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm	A mm
30-1	60	6	80	614 135	17	70-140	1	3	20	13	31	8
30-10	60	6	80	614 135	17	70-180	1	3	20	13	31	8
30-2	70	7	150	621 210	22	100-220	1	4	24	18	40	9
30-20	70	7	150	621 210	22	100-260	1	4	24	18	40	9
30-3	100	10	250	626 280	27	180-340	1	5	35	30	67	20



30-PLUS

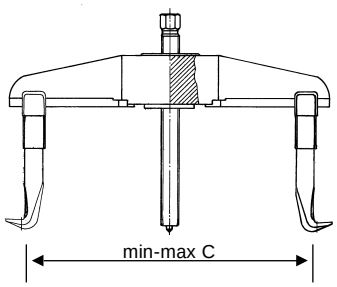
Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm	A mm
30-1+	60	6	80	614 135	17	70-140	1	3	20	13	31	8
30-10+	60	6	80	614 135	17	70-180	1	3	20	13	31	8
30-2+	70	7	150	621 210	22	100-220	1	4	24	18	40	9
30-20+	70	7	150	621 210	22	100-260	1	4	24	18	40	9
30-3+	100	10	250	626 280	27	180-340	1	5	35	30	67	20

30-S

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm
30-1-S	30	3	40	614 137	13	70-140	3	2	28	7	18
30-10-S	30	3	40	614 137	13	70-180	3	2	28	7	18
30-2-S	50	5	120	621 211	17	100-220	3	4.5	32	15	30
30-20-S	50	5	120	621 211	17	100-260	3	4.5	32	15	30
30-3-S	70	7	220	626 281	19	180-340	3	6.5	40	17	40

30-PLUS S

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm
30-1+S	30	3	40	614 137	13	70-140	3	2	28	7	18
30-10+S	30	3	40	614 137	13	70-180	3	2	28	7	18
30-2+S	50	5	120	621 211	17	100-220	3	4.5	32	15	30
30-20+S	50	5	120	621 211	17	100-260	3	4.5	32	15	30
30-3+S	70	7	220	626 281	19	180-340	3	6.5	40	17	40

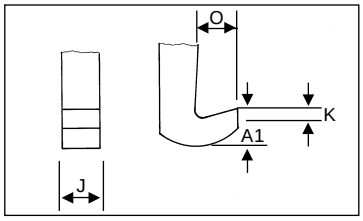


11-A

Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm	A mm
11-0-A	150	15	500	633 350	36	220-500	1	5	35	30	67	9
11-1-A	200	20	650	637 350	41	280-600	1	5	35	30	67	9
11-2-A	200	20	650	637 350	41	290-740	1	5	35	30	67	9

11-AV

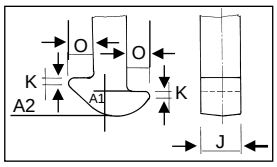
Art. no.	KN	max: to.	Nm		mm	C mm		K mm	J mm	O mm	H mm	A mm
11-0-AV	150	15	500	633 350	36	220-500	2	4	24	43	90	28
11-1-AV	200	20	650	637 350	41	280-600	2	4	24	43	90	28
11-2-AV	200	20	650	637 350	41	290-740	2	8	60	52	110	40



4

12

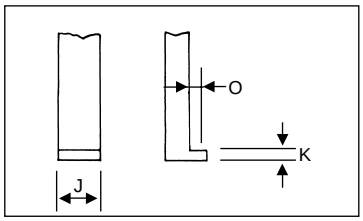
Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A1 mm	A2 mm
12-1	80	8	180	614 135	17	4	2	14	11	8	-
12-2	90	9	190	618 175	19	4	3	17	12	8	-
12-3	100	10	250	623 230	24	4	4	20	15	12	-
12-4	100	10	300	626 355	27	22	7	18	19	18	30
12-5	100	10	300	626 480	27	22	7	18	19	18	30
12-6	150	15	280	633 600	36	22	7	28	22	18	30
12-7	150	15	280	633 600	36	22	7	28	22	18	30



22

14

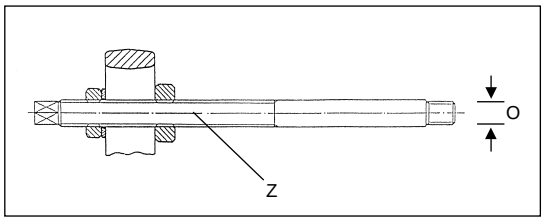
Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm
14-1	25	2.5	50	612 131	13	5	2.5	21	3,5
14-2	35	3.5	80	616 160	19	5	3.9	29	3,5
14-3	45	4.5	100	616 202	19	5	3.9	29	3,5
14-01	10	1	30	612 131	12	5	2.5	11	3,5
14-03	20	2	40	616 202	19	5	3.9	12	3,5



5

18

Art. no.	KN	max: to.	Nm		mm	O	Z
18-0	30	3	40	612 130	14	M 10	612130
18-1	50	5	70	618 175	19	M 10	618175
18-2	70	7	120	621 170	22	M 14 x 1.5	621170
18-3	100	10	280	626 280	27	M 18 x 1.5	626270
18-4	120	12	450	633 425	27	G 5/8"	633425
18-5	150	15	500	637 600	41	G 3/4"	637600

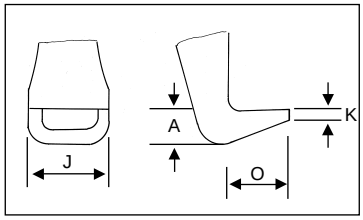


28

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
28-1	60	6	120	620 162	24	6	5	22	14	7.5
28-2	60	6	120	620 172	24	6	5	22	14	7.5
28-3	80	8	150	620 230	24	6	5	24	14	7.5
28-4	80	8	150	620 250	24	6	5	24	14	7.5

41/42

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
41-0	10	1.0	25	610 070	13	6	2	10	7	4
41-1	10	1.0	25	609 087	-	6	2	10	8	4
41-2	15	1.5	25	609 105	-	6	2	10	8	4
41-3	30	3.0	40	612 150	13	6	3	18	12	9
41-4	50	5.0	85	614 200	17	6	4	24	38	12
41-5	70	7.0	150	621 245	22	6	4	34	40	13



6

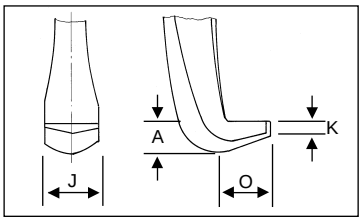
Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
42-0	15	1.5	25	610 070	13	6	2	10	7	4
42-1	15	1.5	25	609 087	-	6	2	10	8	4
42-2	15	1.5	25	609 105	-	6	2	10	8	4
42-3	30	3.0	40	612 150	12	6	3	18	12	9
42-4	50	5.0	85	614 200	17	6	4	24	38	12
42-5	70	7.0	150	621 245	22	6	4	34	40	13

43

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
43-1	10	1	25	609 087	-	7	2	11	10	6
43-2	10	1	25	609 087	-	7	2	11	10	6
43-3	10	1	25	609 105	-	7	2	11	10	6
43-11	15	1.5	25	609 087	-	7	2	11	10	6
43-12	15	1.5	25	609 087	-	7	2	11	10	6
43-13	15	1.5	25	609 105	-	7	2	11	10	6

44/45

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
44-1	30	3	50	612 130	14	7	3	16	9	6
44-2	50	5	85	614 160	17	7	3	17	15	6
44-3	60	6	140	618 210	19	7	3	20	13	9
44-4	70	7	190	623 260	24	7	3	26	22	17
44-5	95	9.5	200	623 325	24	7	3	26	22	17
44-6	95	9.5	200	623 360	24	7	3	26	22	17



7

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
45-1	40	4	50	612 130	14	7	3	16	9	6
45-2	60	6	120	614 160	17	7	3	17	15	6
45-3	80	8	180	618 210	19	7	3	20	13	9
45-4	95	9.5	200	623 260	24	7	3	26	22	17
45-5	95	9.5	200	623 325	24	7	3	26	22	17
45-6	95	9.5	200	623 360	24	7	3	26	22	17
45-7	95	9.5	200	623 450	24	7	3	10	22	23

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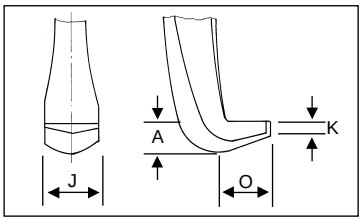
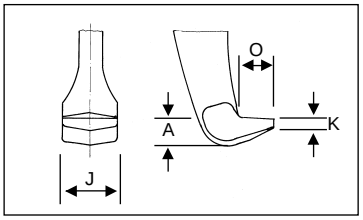


8

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
46-1-A	120	12	450	633 350	36	8	5	35	23	27
46-2-A	120	12	450	633 500	36	8	5	35	23	27
47-1-A	120	12	450	633 350	36	8	5	35	23	27
47-2-A	120	12	450	633 500	36	8	5	35	23	27

112/113

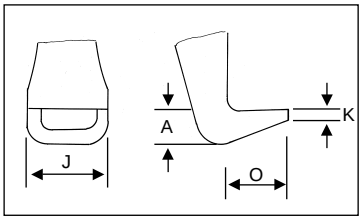


9

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
112-1	15	1.5	25	610 110	8	9	5	10	7	6
112-10	15	1.5	25	610 110	8	9	5	10	7	6
112-2	30	3	55	614 135	17	9	5.5	15	8	8
112-20	30	3	55	614 160	17	9	5.5	15	8	8
112-3	40	4	65	616 220	17	9	6.5	20	11	12
112-4	50	5	100	621 355	22	9	8	25	14	16

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
113-20	30	3	45	614 160	17	9	5.5	15	8	8
113-3	40	4	60	616 220	19	9	6.5	20	11	12
113-4	60	6	95	621 355	22	9	8	25	14	16
113-5	70	7	160	623 325	24	9	8	25	14	16

200



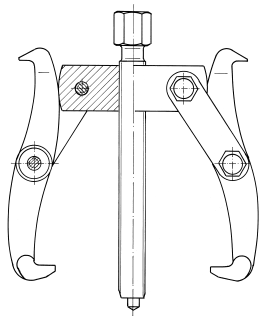
10

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
200-1	40	4	60	614 137	13	10	4	21	15	10
200-2	40	4	60	614 137	13	10	4	21	15	10
200-3	50	5	140	621 210	22	10	4	28	19	12
200-4	50	5	140	621 210	22	10	4	28	19	12
200-41	50	5	140	621 210	22	10	4	28	20	12
200-5	50	5	140	621 210	22	10	4	28	19	12
200-51	50	5	140	621 210	22	10	4	28	20	12

301

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
301-1	40	4	60	614 137	13	10	4	21	15	10
301-2	40	4	60	614 137	13	10	4	21	15	10
301-3	50	5	140	621 210	22	10	4	28	19	12
301-4	50	5	140	621 210	22	10	4	28	19	12

201-S/202-S

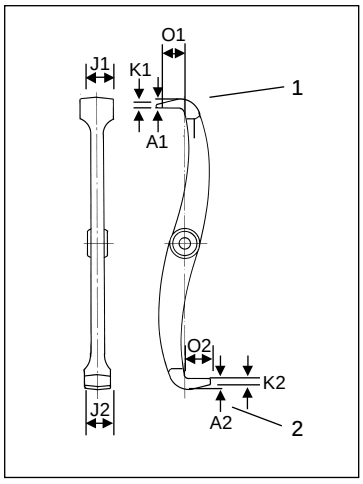


Art. no.	KN	max: to.	Nm		mm		K1 mm	J1 mm	O1 mm	K2 mm	J2 mm	O2 mm	A1 mm	A2 mm
201-S	15	1.5	30	614 240	17	11	7.5	6.0	4.0	9.0	8.5	4.0	6	8
202-S	20	2	35	614 240	17	11	7.5	6.0	4.0	9.0	8.5	4.0	6	8

201

Art. no.	KN	max: to.	Nm		mm		K1 mm	J1 mm	O1 mm	K2 mm	J2 mm	O2 mm	A1 mm	A2 mm
201-0	15	1.5	25	612080	14	11	2.0	11.0	7.0	2.0	11.0	7.0	6	8
201-1	50	5	75	614135	17	11	3.0	15.0	11.0	2.0	9.0	6.0	8	12
201-2	70	7	150	621210	22	11	4.0	26.0	18.0	3.0	20.0	17.0	7	9
201-3	100	10	250	626280	27	11	4.0	26.0	20.0	4.0	26.0	20.0	13	13
201-4	100	10	250	626280	27	11	4.5	26.0	20.0	4.0	26.0	20.0	15	15

202



Art. no.	KN	max: to.	Nm		mm		K1 mm	J1 mm	O1 mm	K2 mm	J2 mm	O2 mm	A1 mm	A2 mm
202-0	15	1.5	25	612080	14	11	2.0	11.0	7.0	2.0	11.0	7.0	6	8
202-1	50	5	75	614135	17	11	3.0	15.0	11.0	2.0	9.0	6.0	8	12
202-2	70	7	150	621210	22	11	4.0	26.0	18.0	3.0	20.0	17.0	7	9
202-3	100	10	250	626280	27	11	4.0	26.0	20.0	4.0	26.0	20.0	13	13
202-4	100	10	250	626280	27	11	4.5	26.0	20.0	4.0	26.0	20.0	15	15

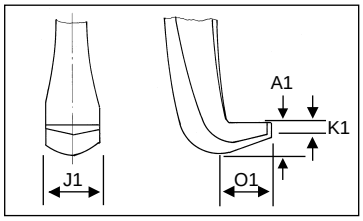
11

203

Art. no.	KN	max: to.	Nm		mm		K1 mm	J1 mm	O1 mm	K2 mm	J2 mm	O2 mm	A1 mm	A2 mm
203-0	15	1.5	25	612080	14	11	2.0	11.0	7.0	2.0	11.0	7.0	6	8
203-1	50	5	75	614135	17	11	3.0	15.0	11.0	2.0	9.0	6.0	8	12
203-2	70	7	150	621210	22	11	4.0	26.0	18.0	3.0	20.0	17.0	7	9
203-3	100	10	250	626280	27	11	4.0	26.0	20.0	4.0	26.0	20.0	13	13
203-4	100	10	250	626280	27	11	4.5	26.0	20.0	4.0	26.0	20.0	15	15

208/209

Art. no.	KN	max: to.	Nm		mm		K1 mm	J1 mm	O1 mm	K2 mm	J2 mm	O2 mm	A1/A2 mm
208-0	10	1	20	610110	8	11	5.0	10.0	8.0	4.0	10.0	6.0	5.5
208-01	20	2	20	614160	17	12	3.5	16.0	13.0	-	-	-	7
208-02	25	2.5	50	621210	22	12	4.5	20.0	16.0	-	-	-	10



12

Art. no.	KN	max: to.	Nm		mm		K1 mm	J1 mm	O1 mm	K2 mm	J2 mm	O2 mm	A1/A2 mm
209-0	10	1	20	610110	8	11	5.0	10.0	8.0	4.0	10.0	6.0	5.5
209-01	20	2	20	614160	17	12	3.5	16.0	13.0	-	-	-	7
209-02	25	2.5	50	621210	22	12	4.5	20.0	16.0	-	-	-	10

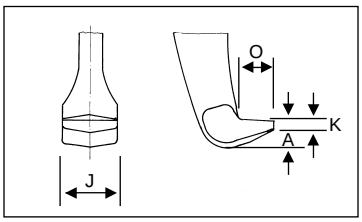
205

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
205-00	35	3.5	50	612 110	14	13	1.5	14	12	6
205-01	50	5	120	614 160	17	13	3	18	12	10
205-02	70	7	150	621 210	22	13	4	24	16	9
205-1	100	10	280	626 280	27	13	5	30	23	20
205-2	100	10	300	626 400	27	13	5	30	23	20
205-3	120	12	320	626 400	27	13	5	29	17	22

206

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
206-00	35	3.5	50	612 110	14	13	1.5	14	12	6
206-01	50	5	120	614 160	17	13	3	18	12	10
206-02	70	7	150	621 210	22	13	4	24	16	9
206-1	100	10	280	626 280	27	13	5	30	23	20
206-2	100	10	300	626 400	27	13	5	30	23	20
206-3	120	12	320	626 400	27	13	5	29	17	22

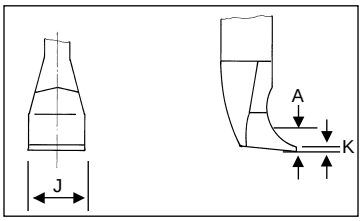
207



13

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
207-00	35	3.5	50	612 110	14	13	1.5	14	12	6
207-01	50	5	120	614 160	17	13	3	18	12	10
207-02	70	7	150	621 210	22	13	4	24	16	9
207-1	100	10	280	626 280	27	13	5	30	23	20
207-2	100	10	300	626 400	27	13	5	30	23	20
207-3	120	12	320	626 400	27	13	5	29	17	22

204/210



14

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	A mm
204-0	10	1	10	610 094	-	14	5	18	5,5
204-02	40	4	75	621 130	22	14	4	22	7
204-1	50	5	100	618 105	19	14	6	24	10
204-2	60	6	120	621 130	22	14	3.5	24	10
204-3	75	7.5	175	623 170	24	14	5	24	12

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	A mm
210-1	50	5	100	621 210	22	14	4	25	12
210-2	80	8	140	623 325	24	14	4	25	12
210-3	100	10	200	623 325	24	14	4	25	12

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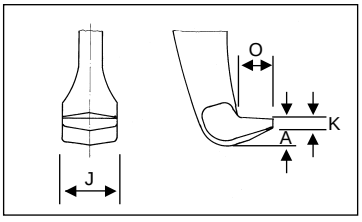


15

Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
482-1	15	1.5	25	608 080	-	15	2	8	6	4
482-2	15	1.5	25	608 130	-	15	2.5	8	6	4
482-3	25	2.5	35	612 200	10	15	3	14	8	6
482-4	30	3	40	616 270	13	15	3.5	16	9	7
428-5	30	3	40	616 325	13	15	3.5	16	9	7

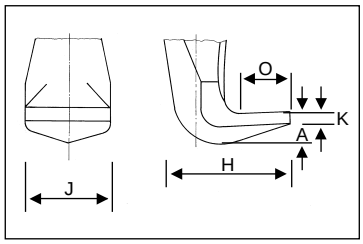
Art. no.	KN	max: to.	Nm		mm		K mm	J mm	O mm	A mm
483-2	15	1.5	25	608 130	-	15	2.5	8	6	4
483-3	25	2.5	35	612 200	10	15	3	14	8	6
483-4	30	3	40	616 270	13	15	3.5	16	9	7
483-5	30	3	40	616 325	13	15	3.5	16	9	7

User Information

Pullers with hydraulic rams

11-B/BV

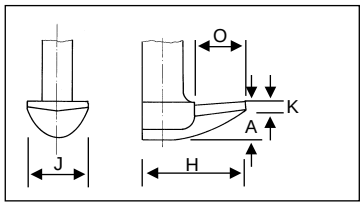
Art. no.	KN	max: to.	Nm	Hydr.	C mm		K mm	J mm	O mm	H mm	A mm
11-0-B	150	15	30	8-1-B	220-500	1	5	35	30	67	28
11-1-B	150	15	45	8-2-K	280-600	1	5	35	30	67	28
11-2-B	200	20	30	8-2-K	290-740	1	5	35	30	67	28
11-3-B	200	20	30	8-2-K	290-740	1	5	35	30	67	28



1

Art. no.	KN	max: to.	Nm	Hydr.	C mm		K mm	J mm	O mm	H mm	A mm
11-0-BV	150	15	30	8-1-B	220-500	2	4	24	43	90	28
11-1-BV	150	15	45	8-2-K	280-600	2	4	24	43	90	28
11-2-BV	200	20	30	8-2-K	290-740	2	8	60	52	110	40

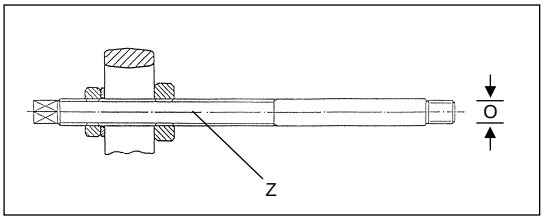
20-H



2

Art. no.	KN	max: to.	Nm	Hydr.	C mm		K mm	J mm	O mm	H mm	A mm
20-4-H	150	15	45	8-1-B	200- 590	2	4	24	43	90	28
20-40-H	150	15	45	8-1-B	200- 710	2	4	24	43	90	28
20-5-H	200	20	30	8-2-M	340-1000	2	8	60	52	110	40

18-4/18-5/818-0



Art. no.	KN	max: to.	Nm	Hydr.	O	Z
18-4	150	15	45	8-1-B	G $^{5}/_{8}$"	633425
18-5	200	20	30	8-2-M	G $^{3}/_{4}$"	637600
818-0	100	10	40	800	$^{5}/_{8}$"-18 UNF	616290

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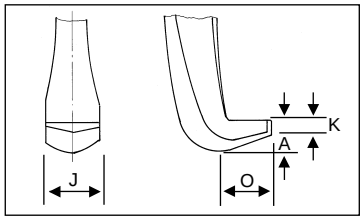

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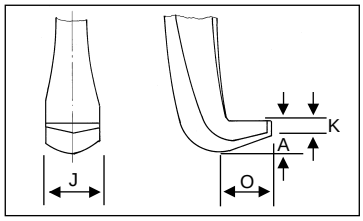
Art. no.	KN	max: to.	Nm	Hydr.		K mm	J mm	O mm	A mm
46-1-B	150	15	45	8-1-F	16	5	30	23	27
46-2-B	150	15	45	8-1-F	16	5	30	23	27
47-1-B	150	15	45	8-1-F	16	5	30	23	27
47-2-B	150	15	45	8-1-F	16	5	30	23	27



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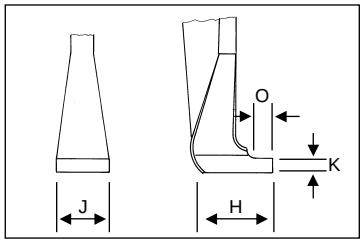
209

Art. no.	KN	max: to.	Nm	Hydr.		K mm	J mm	O mm	A mm
209-2-B	150	15	45	8-1-F	17	5	30	23	20



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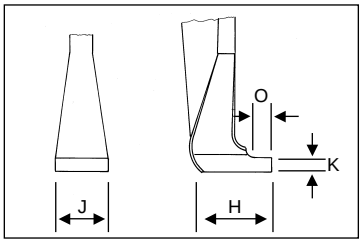
820

Art. no.	KN	max: to.	Nm	Hydr.		K mm	J mm	O mm	H mm
820-0	100	10	40	800	18	5	32	18	40

844/845



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Art. no.	KN	max: to.	Nm	Hydr.	K mm	J mm	O mm	H mm
844-1-B	100	10	40	800	19	6.5	25	12	43
844-2-B	100	10	40	800	19	6.5	25	11	43
844-3-B	100	10	40	800	19	6.5	25	16	43
844-4-B	100	10	40	800	19	6.5	25	16	43
844-5-B	100	10	40	800	19	6.5	25	14	43

Art. no.	KN	max: to.	Nm	Hydr.	K mm	J mm	O mm	H mm
845-1-B	100	10	40	800	19	6.5	25	12	43
845-2-B	100	10	40	800	19	6.5	25	11	43
845-3-B	100	10	40	800	19	6.5	25	16	43
845-4-B	100	10	40	800	19	6.5	25	16	43
845-5-B	100	10	40	800	19	6.5	25	14	43

Hydraulic Rams, Spindle Assemblies and Nut Splitters

Art. no.	KN	max: to.	Nm
8-1	150	15	45
8-2	200	20	30

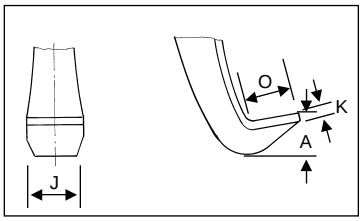
Art. no.	KN	max: to.	Nm
9-1	100	10	35
9-2	150	15	50

Art. no.	max:
56-1	60 Nm
56-2	70 Nm

Art. no.	KN	max: to.	Nm	Gew.
10-1	250	25	45	M 76 x 2

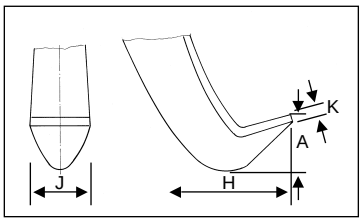
Art. no.	KN	max: to.	Nm	Gew.
800	100	10	40	W 1 1/2"-16
801	150	15	70	W 1 1/2"-16
802	200	20	100	M 40 x 1.5

„HYD“ Pullers with Pump Hydraulics



20

Art. no.	KN	max: to.	bar	Hydr.	K mm	J mm	O mm	A mm
Y08-208	45	4.5	700	YRE-050	20	4	24	15	10
Y18-208	100	10	700	YRE-101	20	4.5	30	22	22



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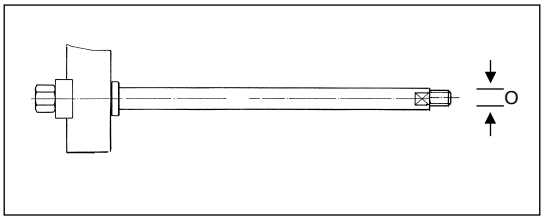
Art. no.	KN	max: to.	bar	Hydr.	K mm	J mm	H mm	A mm
Y28-205	200	20	650	YRH-202	21	5	29	33	28
Y38-205	300	30	660	YRH-302	21	5	38	41	34
Y58-205	500	50	610	YRH-603	21	7	50	47	48

Art. no.	KN	max: to.	bar	Hydr.	K mm	J mm	H mm	A mm
Y28-206	200	20	650	YRH-202	21	5	29	33	28
Y38-206	300	30	660	YRH-302	21	5	38	41	34
Y58-206	500	50	610	YRH-603	21	7	50	47	48

„HYD“ Pulling Tools with Pump Hydraulics



Art. no.	KN	max: to.	bar	Hydr.	O
Y 20-180	200	20	650	YRH-202	5/8"-18 UNF
Y 30-180	300	30	660	YRH-302	1"-12 UNF
Y 50-180	500	50	610	YRH-603	1 3/4"-12 UNF

KUKKO fills all orders received by noon within 24 hours*

24 HOUR

delivery service

*** Applies to all stock items.**

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Numerical Index

TURNUS®

WINKELGREIF®

a KUKKO Partner Enterprise

The **Eduard Gottfr. Ferne GmbH & Co. KG Tool Factory** was founded in 1853. As such, it is one of Germany's most richly heritaged toolmakers and the producer of the globally renowned TURNUS and WINKELGREIF clamping and cutting tools.

Among professional users in the trades, commerce and industry, TURNUS-brand **clamping tools** are a hallmark of quality and continuous, application-oriented progress.

TURNUS, the market leader for such traditional products as hand vises and such cutting-edge tools as the world's only all-steel screw clamps with anti-slip and spindle-lock devices, heavy-duty grip clamps and numerous other innovative products, offers users a supply program that satisfies all needs and demands. The TURNUS product array is included in this catalogue, beginning on page 114.

Then, starting on page 157, you'll find a broad range of Winkelgreif cutting tools, which have been known for decades now for their high cutting capacities, perfect convenience of use, long service lives and quality of detail execution.

The full line of Winkelgreif tools, including standard tin snips in high-grade and stainless steel, compound leverage tin snips with stainless-steel and tungsten-carbide cutting edges, electrician's shears and cable cutters, multi-purpose cutters and a multiplicity of other ergonomically engineered industrial shears, meets any requirements a professional user could pose.

TURNUS WINKELGREIF

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WINKELGREIF

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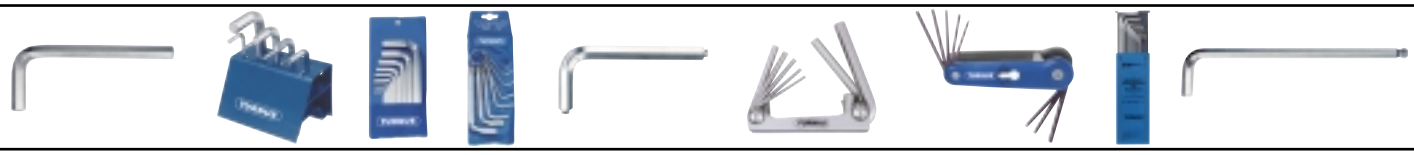

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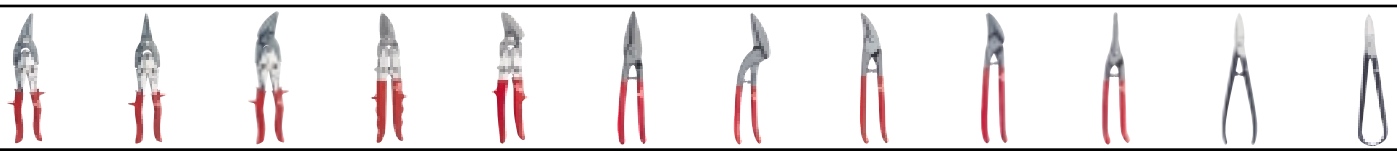
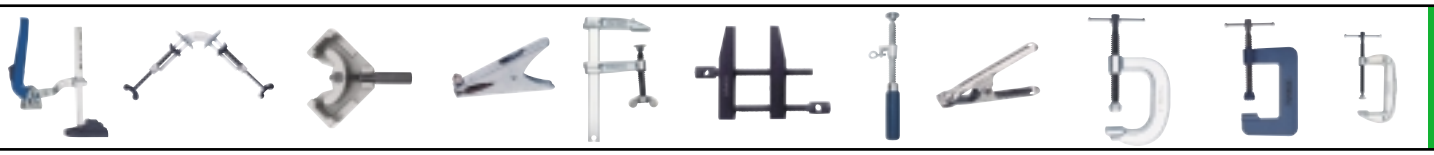


TURNUS
WINKELGREIF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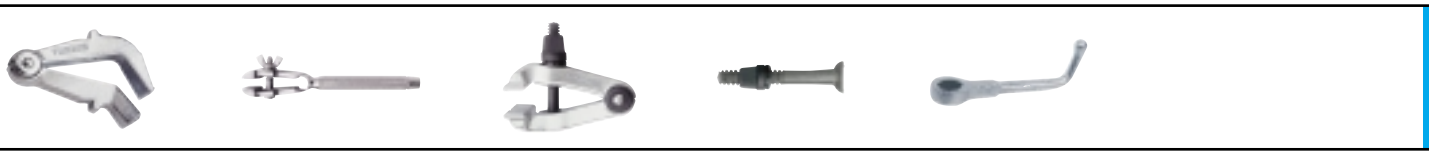
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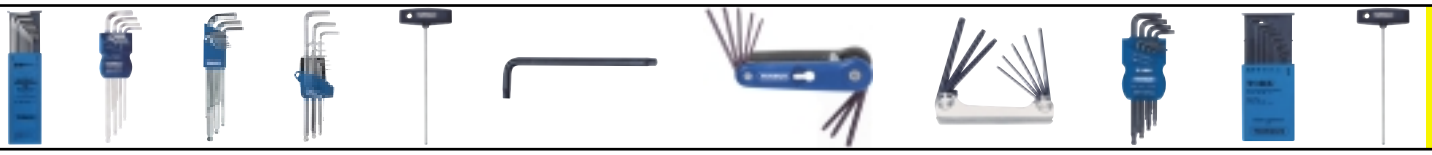
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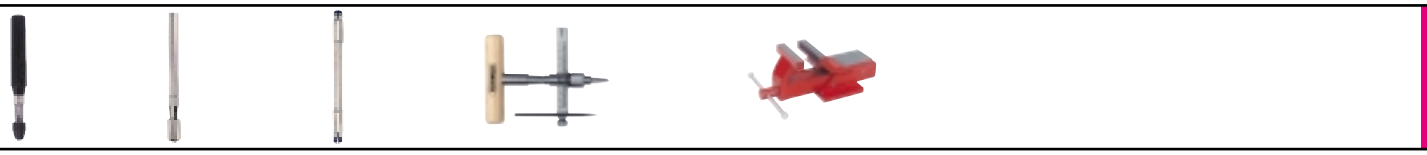
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TURNUS
WINKELGREIF

TURNUS®

Clamping Technology to the Most Demanding Standards Since 1853

TURNUS
a **KUKKO** - associate enterprise

1

Original TURNUS - Malleable Cast Iron Clamps

the touchstone for top quality

Sliding and fixed arms
made of high-grade malleable cast iron
reliable double-T profile
extra resistant to bending and twisting
galvanized for unsoiled handling

Plastic pressure caps
for gentle clamping

Pressure pad with integrated spindle lock
to effectively preclude vibration-induced loosening of the spindle (domestic and foreign industrial property rights)

KUKKO - quality spindle
smooth-turning trapezoidal thread, with gunmetal finish

Covered handle fixator
no danger of burr-induced injuries

POWERGRIP

25 % more powerful than conventional grips
handy ergonomic shape
made of good-grip beechwood

Revolutionary anti-slip device
load-independent action mechanism
no nicking of the rail
maximum reliability
high longevity
(domestic and foreign industrial property rights)

Drawn-section safety rail
serrated on both sides, galvanized

TURNUS
a KUKKO - associate enterprise

Original TURNUS - Malleable Cast Iron Clamps

a touchstone for top quality

Special sizes and models on inquiry.
Models with T-handle beginning with the opening size 160 mm.
When ordering, please replace the hyphen with a „K“, or „PK“ instead of „P“.

ORIGINAL TURNUS malleable cast iron screw clamps

with drawn-section safety rail,
slip preventer and spindle-lock devices to prevent slipping and unintentional loosening, **powergrip** for additional gripping power and plastic pressure caps; up to 6000 MP gripping power

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
490-120	120	65	22 x 6	0.60	10
490-160	160	80	22 x 6	0.80	10
490-200	200	100	30 x 8	1.40	10
490-250	250	120	30 x 8	1.70	10
490-300	300	140	35 x 9	2.35	10
490-400	400	175	35 x 9	2.90	5

ORIGINAL TURNUS heavy-duty malleable cast iron general purpose clamps

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
491-040	400	120	35 x 11	2.90	5
491-050	500	120	35 x 11	3.05	5
491-060	600	120	35 x 11	3.30	5
491-080	800	120	35 x 11	4.00	5
491-100	1000	120	35 x 11	4.60	5
491-125	1250	120	35 x 11	5.15	5
491-150	1500	120	35 x 11	5.85	5
491-180	1800	120	35 x 11	6.50	1
491-200	2000	120	35 x 11	7.40	1
491-220	2200	120	35 x 11	7.80	1
491-250	2500	120	35 x 11	8.70	1
491-300	3000	120	35 x 11	10.10	1
491-350	3500	120	35 x 11	11.30	1

TURNUS malleable cast iron clamps to DIN 5117

with hollow rail, serrated on both sides, galvanized malleable cast iron sliding and fixed arms, flat-black galvanized finish, beechwood handle, good-grip shape, plastic pressure caps

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
500P120	120	65	22 x 6	0.56	10
500P160	160	80	22 x 6	0.76	10
500P200	200	100	30 x 8	1.38	10
500P250	250	120	30 x 8	1.62	10
500P300	300	140	35 x 9	2.30	10
500P400	400	175	35 x 9	2.87	5

TURNUS malleable cast iron moment clamps

Art. no.	Opening mm	Throat depth mm	Solid rail mm	kg	
501P040	400	120	35 x 11	2.85	5
501P050	500	120	35 x 11	3.00	5
501P060	600	120	35 x 11	3.28	5
501P080	800	120	35 x 11	3.94	5
501P100	1000	120	35 x 11	4.55	5
501P125	1250	120	35 x 11	5.10	5
501P150	1500	120	35 x 11	5.80	5
501P180	1800	120	35 x 11	6.40	1
501P200	2000	120	35 x 11	7.30	1
501P250	2500	120	35 x 11	8.70	1
501P300	3000	120	35 x 11	10.10	1

TURNUS
a **KUKKO** - associate enterprise

1

TURNUS - Moment Clamps to DIN 5117

serving reliably for decades

ST 60-2 K rail to DIN 1652

Also available in special sizes with T-handle on inquiry. When ordering, please enter „K“ in place of the hyphen.

TURNUS moment clamps to DIN 5117

with solid rail, serrated on both sides, galvanized sliding and fixed arms made of malleable cast iron, galvanized; beechwood handle, good-grip shape

Art. no.	Opening mm	Throat depth mm	Solid rail mm	kg	
500-100	100	50	15 x 5	0.26	10
500-120	120	65	22 x 6	0.56	10
500-160	160	80	22 x 6	0.76	10
500-200	200	100	30 x 8	1.38	10
500-250	250	120	30 x 8	1.62	10
500-300	300	140	35 x 9	2.30	10
500-400	400	175	35 x 9	2.87	5

TURNUS moment clamps to DIN 5117

Art. no.	Opening mm	Throat depth mm	Solid rail mm	kg	
501-040	400	120	35 x 11	2.85	5
501-050	500	120	35 x 11	3.00	5
501-060	600	120	35 x 11	3.28	5
501-080	800	120	35 x 11	3.94	5
501-100	1000	120	35 x 11	4.55	5
501-125	1250	120	35 x 11	5.10	5
501-150	1500	120	35 x 11	5.80	5
501-180	1800	120	35 x 11	6.40	1
501-200	2000	120	35 x 11	7.30	1
501-250	2500	120	35 x 11	8.70	1
501-300	3000	120	35 x 11	10.10	1

TURNUS malleable cast iron clamps - intermediate sizes

Art. no.	Opening mm	Throat depth mm	Solid rail mm	kg	
500-304	400	140	35 x 9	2.43	5
500-306	600	140	35 x 9	2.89	5
500-308	800	140	35 x 9	3.35	5
500-310	1000	140	35 x 9	3.81	5
500-406	600	175	35 x 9	3.33	5
500-408	800	175	35 x 9	3.79	5
500-410	1000	175	35 x 9	4.25	5

TURNUS deep-throat moment clamps

with extra-large bright-drawn rail, serrated on both sides; malleable cast iron arm, painted for lasting corrosion protection; up to 8000 MP gripping power

Art. no.	Opening mm	Throat depth mm	Solid rail mm	kg	
505-040	400	200	43 x 10	4.00	5
505-060	600	200	43 x 10	4.70	5
505-080	800	200	43 x 10	5.40	5
505-100	1000	200	43 x 10	6.10	5
506-040	400	250	43 x 10	4.80	5
506-060	600	250	43 x 10	5.40	5
506-080	800	250	43 x 10	6.10	5
506-100	1000	250	43 x 10	6.50	5
507-040	400	300	45 x 12	5.80	2
507-060	600	300	45 x 12	6.50	2
507-080	800	300	45 x 12	7.30	2
507-100	1000	300	45 x 12	8.00	2
508-040	400	400	45 x 12	8.00	2
508-060	600	400	45 x 12	8.80	2
508-080	800	400	45 x 12	9.60	2
508-100	1000	400	45 x 12	10.40	2
509-030	300	500	45 x 12	9.30	2
509-060	600	500	45 x 12	9.90	2
509-080	800	500	45 x 12	10.70	2

TURNUS
a **KUKKO** - associate enterprise

TURNUS - Malleable Cast Iron Clamps

serving reliably for decades

ST 60-2 K rail to DIN 1652

TURNUS UNIVERSA malleable cast iron clamps

light, handy models, universally applicable, for demanding do-it-yourself projects as well as for professional artisanal and industrial applications. Throat depths of 80 and 120 mm, with up to 4500 MP gripping power.

Art. no.	Opening mm	Throat depth mm	Solid rail mm	kg	
503-012	120	80	22 x 6	0.55	10
503-016	160	80	22 x 6	0.59	10
503-020	200	80	22 x 6	0.63	10
503-025	250	80	22 x 6	0.68	10
503-030	300	80	22 x 6	0.73	10
503-040	400	80	22 x 6	0.83	10
504-020	200	120	30 x 8	1.35	10
504-025	250	120	30 x 8	1.42	10
504-030	300	120	30 x 8	1.49	10
504-040	400	120	30 x 8	1.66	5
504-050	500	120	30 x 8	1.84	5
504-060	600	120	30 x 8	2.02	5
504-075	750	120	30 x 8	2.10	5
504-080	800	120	30 x 8	2.37	5
504-100	1000	120	30 x 8	2.71	5
504-125	1250	120	30 x 8	3.15	5
504-150	1500	120	30 x 8	3.59	5

Also available with wooden handle.
When ordering, please enter „H“ in place of the hyphen.

Edge-gluing clamps

Arms made of sturdy malleable cast iron, flat-black galvanized, heavy-duty. Smooth-turning spindles with trapezoidal threads; extra safe thanks to large pressure pads with plastic pressure caps

Art. no.	Opening mm	Throat depth mm	kg	
433-070	70	60	1.7	1

TURNUS edging clamp

fits all screw clamps

Art. no.	Length mm	kg	
502-400	160	0.40	1

TURNUS
a **KUKKO** - associate enterprise

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ORIGINAL TURNUS - All-steel Screw Clamps

Type series TURNAT, the global no. 1 anti-slip, spindle-locking clamps (domestic and foreign industrial property rights)

Fixed arm
Special drawn-section safety rail
annealed, bright-zinc galvanized

Pressure pad with integrated spindle lock
the innovation that secures clamping-force resiliency
(domestic and foreign industrial property rights)

KUKKO - quality spindle
smooth-turning trapezoidal thread,
gunmetal finish

Sliding arm
drop-forged
heat-treated, bright-zinc
galvanized

Covered handle fixator
no danger of
burr-induced injuries

POWERGRIP
25 % more powerful than
conventional grips
handy ergonomic shape
made of good-grip beechwood

Revolutionary anti-slip device
load-independent action mechanism
no nicking of the rail
maximum reliability
high longevity
(domestic and foreign industrial property rights)

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ORIGINAL TURNUS - All-steel Screw Clamps

the global no. 1 anti-slip clamps

Also available with T-handle.
When ordering, please enter „K“ in place of the hyphen.

ORIGINAL TURNUS ALL-STEEL SCREW CLAMPS „TURNAT“

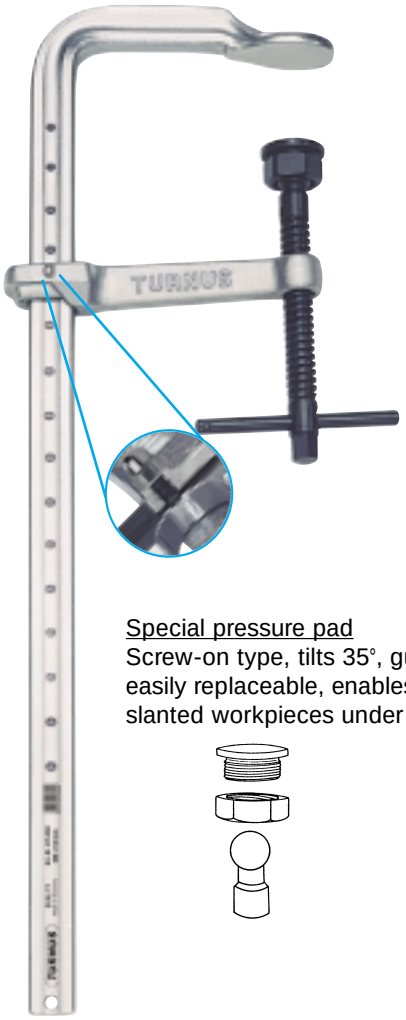
Sliding arm made of drop-forged steel, heat-treated and galvanized, with load-independent anti-slip and spindle-lock devices plus power grip, for maximum performance; up to 5000 MP gripping power

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
470-012	120	60	13.5 x 6.5	0.30	10
470-016	160	80	16 x 7.5	0.50	10
470-020	200	100	19.5 x 9.5	0.90	10
470-025	250	120	22 x 10.5	1.30	10
470-030	300	140	25 x 12	1.80	10
470-040	400	120	25 x 12	1.90	5
470-050	500	120	25 x 12	2.20	5
470-060	600	120	25 x 12	2.40	5
470-080	800	120	27 x 13	3.30	5
470-100	1000	120	27 x 13	3.80	5
470-125	1250	120	27 x 13	4.40	1
470-150	1500	120	27 x 13	5.00	1

TURNUS all-steel fitter’s clamps with anti-slip device

for up to 8500 MP gripping power

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
473-020	200	120	27 x 13	1.97	5
473-025	250	120	27 x 13	2.09	5
473-030	300	120	27 x 13	2.21	5
473-040	400	120	27 x 13	2.46	5
473-050	500	120	27 x 13	2.71	5
473-060	600	120	27 x 13	2.96	5

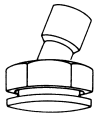


TURNUS heavy-duty all-steel fitter’s clamps

with anti-slip device, for up to 12.000 MP gripping power

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
475-025	250	120	30 x 15	2.76	5
475-030	300	140	30 x 15	3.03	5
475-050	500	140	30 x 15	3.66	5
475-080	800	140	30 x 15	4.62	5
475-100	1000	120	30 x 15	5.15	5
475-125	1250	120	30 x 15	5.94	1
475-150	1500	120	30 x 15	6.65	1

Special pressure pad
Screw-on type, tilts 35°, gunmetal finish, easily replaceable, enables clamping of slanted workpieces under load.



TURNUS all-steel construction clamps with anti-slip device

and extra-sturdy rail for maximum loading capacity.
Up to 22,000 MP gripping power

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
480-030	300	175	40 x 20	5.50	1
480-040	400	175	40 x 20	6.10	1
480-050	500	175	40 x 20	6.60	1
480-060	600	175	40 x 20	7.20	1
480-080	800	175	40 x 20	8.30	1
480-100	1000	175	40 x 20	9.50	1

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TURNUS All-steel Moment Clamps

Also available with T-handle (from 120 mm). When ordering, please enter „K“ in place of the hyphen.

TURNUS all-steel moment clamps

Fixed arm made of cold-drawn steel, sliding arm made of drop-forged steel, heat-treated and galvanized. Cold-swaged pressure pad, spindle with gunmetal finish and good-grip beechwood handle.

Moment clamps

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
469-010	100	50	11.5 x 5.7	0.20	10
469-012	120	60	13.5 x 6.5	0.30	10
469-016	160	80	16 x 7.5	0.50	10
469-020	200	100	19.5 x 9.5	0.90	10
469-025	250	120	22 x 10.5	1.30	10
469-030	300	140	25 x 12	1.80	10
469-040	400	120	25 x 12	1.90	5
469-050	500	120	25 x 12	2.20	5
469-060	600	120	25 x 12	2.40	5
469-080	800	120	27 x 13	3.30	5
469-100	1000	120	27 x 13	3.80	5
469-125	1250	120	27 x 13	4.40	1
469-150	1500	120	27 x 13	5.00	1

Moment fitter’s clamps

Special pressure pad tilts 35° to enable clamping of slanted workpieces under load

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
473M020	200	120	27 x 13	1.97	5
473M025	250	120	27 x 13	2.09	5
473M030	300	120	27 x 13	2.21	5
473M040	400	120	27 x 13	2.46	5
473M050	500	120	27 x 13	2.71	5
473M060	600	120	27 x 13	2.96	5

Heavy-duty moment fitter’s clamps

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
475M025	250	120	30 x 15	2.76	5
475M030	300	140	30 x 15	3.03	5
475M050	500	140	30 x 15	3.66	5
475M080	800	140	30 x 15	4.62	5
475M100	1000	120	30 x 15	5.15	5
475M125	1250	120	30 x 15	5.94	1
475M150	1500	120	30 x 15	6.65	1

Moment steel construction clamps

with extra-sturdy rail for maximum loading capacity. Drop-forged, galvanized sliding arm. The special pressure pad tilts 35° to enable clamping of slanted workpieces under extreme loads in the construction of steel structures, trucks, machines, etc.

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
480M030	300	175	40 x 20	5.50	1
480M040	400	175	40 x 20	6.10	1
480M050	500	175	40 x 20	6.60	1
480M060	600	175	40 x 20	7.20	1
480M080	800	175	40 x 20	8.30	1
480M100	1000	175	40 x 20	9.50	1

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TURNUS All-steel Quick Lever Clamps (Push Action)

Sliding arm
drop-forged
heat-treated, bright-zinc galvanized

Pressure pad
self-aligning,
galvanized

Release lever
made of plastic-coated,
hardened steel

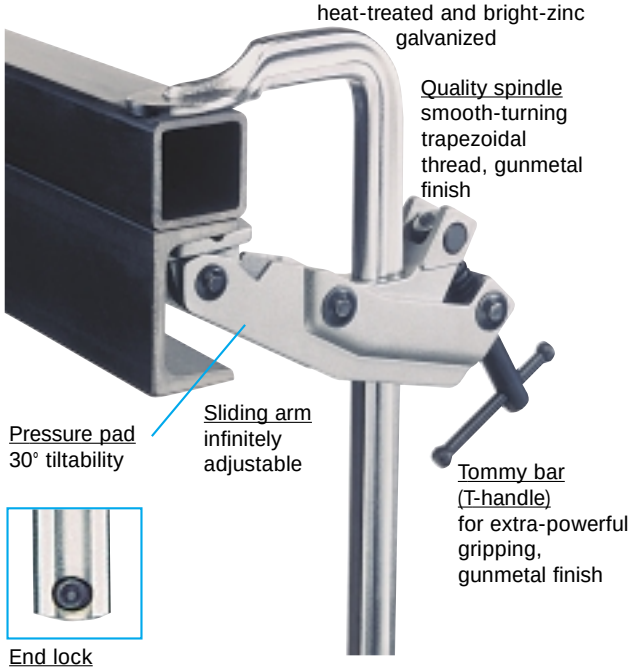
Lever handle
ergonomic design

Fixed arm
heat-treated, made of bright-drawn
sectional steel, bright-zinc galvanized

TURNUS all-steel quick lever clamps (push action)

for quick and easy high-pressure clamping operations, with self-locking, lever-operated, snap-in segment, for up to 7000 MP gripping power

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
472-016	160	80	16 x 7.5	0.54	10
472-020	200	100	19.5 x 9.5	1.00	10
472-025	250	120	22 x 10.5	1.62	10
472-030	300	140	25 x 12	2.42	10
472-040	400	120	25 x 12	2.55	5
472-050	500	120	25 x 12	2.76	5
472-060	600	120	25 x 12	2.97	5
472-080	800	120	27 x 13	3.08	5
472-100	1000	120	27 x 13	4.30	5



Frame and sliding arm
heat-treated and bright-zinc galvanized

Quality spindle
smooth-turning
trapezoidal
thread, gunmetal
finish

Pressure pad
30° tiltability

Sliding arm
infinitely
adjustable

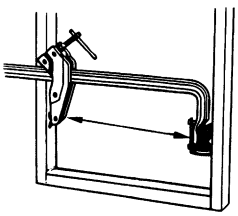
Tommy bar
(T-handle)
for extra-powerful
gripping,
gunmetal finish

End lock
with size-5 hexagon socket wrench for quick repositioning of the sliding arm

TURNUS cantilever clamps for clamping and spreading

Mechanical clamping elements situated outside of the gripping range, for maximum gripping power despite minimum space requirement, combining all the advantages of clamps, tighteners, spreaders, etc. in a single tool, with reversible sliding arm for spreading action in combination with spreading pressure pad, all at up to 8000 MP gripping power.

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
471-030	300	100	27 x 13	2.72	5
471-060	600	100	27 x 13	3.46	5
471-100	1000	100	27 x 13	4.41	5
471-101	same pressure pad for all models			0.40	2
471-102	self-aligning chops				2



Pressure pad

471-102

For use as a spreader, i.e., for inside-out clamping (see sketch), simply reverse-mount the sliding arm and fasten the (optional) pressure pad to the top of the frame.

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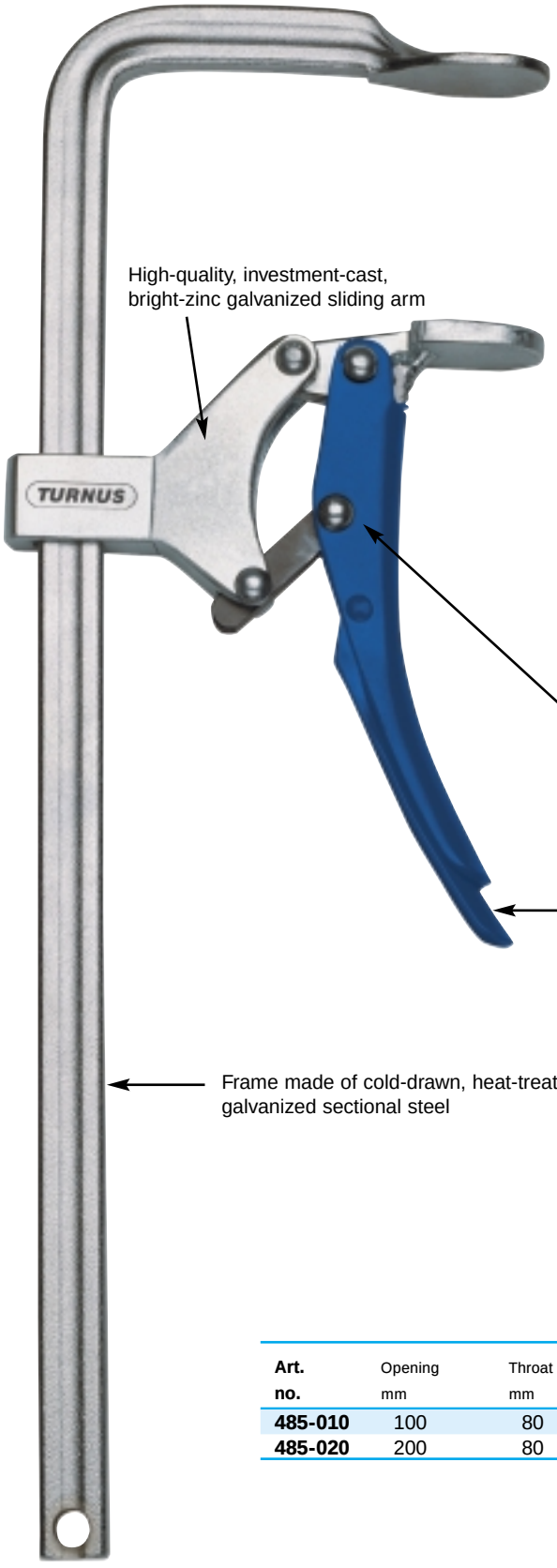
TURNUS All-steel Grip Clamps

EASY
FAST
SAFE
POWERFUL



High-quality, investment-cast, bright-zinc galvanized sliding arm

High gripping power (up to 4000 MP) via toggle action

Ergonomically designed lever handle with quick-release lever and blue protective paint

Frame made of cold-drawn, heat-treated, galvanized sectional steel

Outstanding cross between a conventional pair of grip pliers and a multi-purpose clamp.

Particularly useful for quick fixing and clamping of metal constructions.

Infinitely adjustable spread from 0 to 200 mm.

80-mm throat depth.

QUALITY TURNUS® MADE IN GERMANY

Domestic and foreign industrial property rights

Art. no.	Opening mm	Throat depth mm	Rail mm	kg	
485-010	100	80	16 x 7.5	0.6	10
485-020	200	80	16 x 7.5	0.7	10

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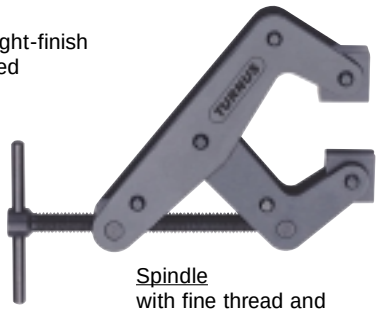
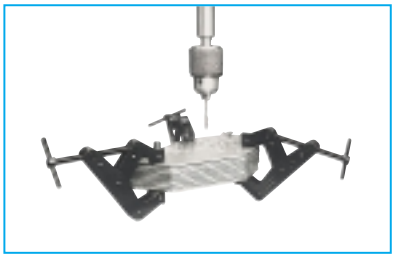
TURNUS KANT-TWIST Parallel Clamps

Shank
made of cold-rolled bright-finish high-grade steel, painted



Clamping jaw
made of heat-treated steel

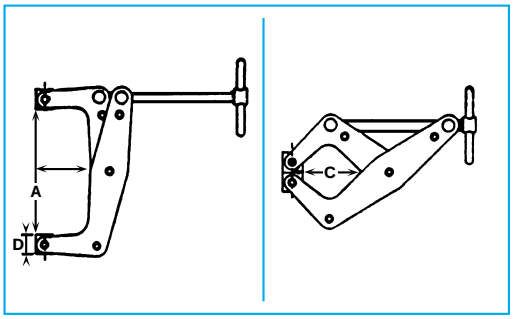


Tommy bar (T-handle)
for extra gripping power

Spindle
with fine thread and gunmetal finish

TURNUS KANT-TWIST parallel clamps

combine the advantages of clamps, tighteners, spreaders, etc., all in a single tool
fast clamping, high gripping power, handy tool
crank and spindle arranged outside of working range



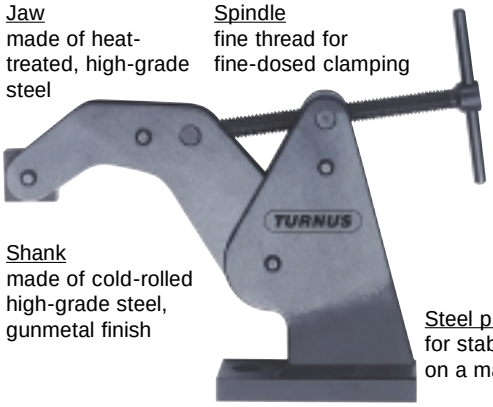
Art. no.	Spread A mm	Depth B (fully open) mm	Depth C (fully closed) mm	Pressure-pad width D mm	kg	
431-001	25	15	17	8	0.030	1
431-002	50	35	40	12	0.170	1
431-003	75	35	50	16	0.500	1
431-004	110	60	75	22	0.900	1
431-006	150	60	85	22	1.300	1
431-009	240	80	135	32	3.300	1
431-010	255	150	190	32	4.850	1
431-012	300	120	170	32	6.000	1

TURNUS Platen-mounting Clamps

Jaw
made of heat-treated, high-grade steel

Spindle
fine thread for fine-dosed clamping

Tommy bar
for optimal transmission of force



Shank
made of cold-rolled high-grade steel, gunmetal finish

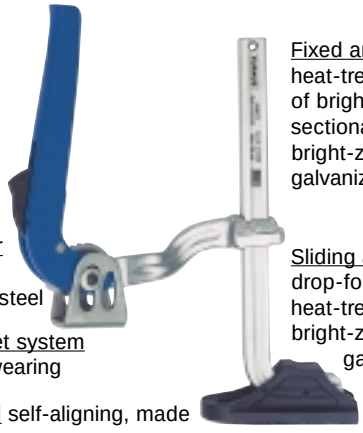
Steel plate
for stable mounting on a machine bench

TURNUS Compact Clamp with Adjusting Spindle

Mechanical clamping elements situated outside of the working range enable good access to the tool. For powerful, safe on-bench clamping with hole for 13 mm fixing bolt

Art. no.	Clamping height mm	Throat depth (fully open) mm	Throat depth (fully closed) mm	Jaw width mm	kg	
431-401	110	40	80	22	0.8	1

Lever
sturdy, for powerful clamping



Fixed arm
heat-treated, made of bright-drawn sectional steel, bright-zinc galvanized

Release lever
made of heat-treated steel

Sliding arm
drop-forged, heat-treated, bright-zinc galvanized

Ratchet system
hard-wearing

TURNUS Speed Clamp

for safe, speedy, efficient clamping by lever action, infinitely height-adjustable
with hole for 13 mm fixing bolt

Art. no.	Clamping height mm	Throat depth mm	Rail mm	kg	
432-200	200	100	22 x 10.5	1.70	1

Pressure pad self-aligning, made of heat-treated steel, bright-zinc galvanized

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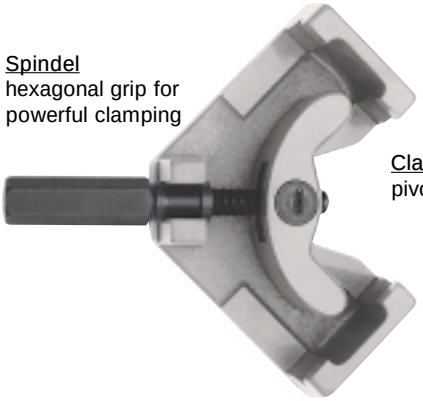
ORIGINAL TURNUS Clamping Tools



TURNUS welder's angle clamps

Body and clamping jaws as high-quality castings.

Will clamp any pair of steel sections or pipes, even of different size, simultaneously and at right angles

Art. no.	Max. clamping capacity mm	Max. passage mm	kg	
450-130	2 x 30	30	2.50	1
450-260	2 x 60	60	7.50	1

TURNUS miter clamps for welding

will clamp any pair of steel sections, pipes, etc. at right angles

Art. no.	Opening mm	kg	
450-050	50	2.10	1
450-100	100	2.70	1

Also available with wooden handle.
When ordering, please enter „H" in place of the hyphen.

TURNUS ground screw clamps

with fixed and sliding arms made of high-grade malleable cast iron with lug connector at the base of the bright-drawn solid rail, galvanized, with wing nut or optional wooden handle

Art. no.	Opening mm	Throat depth	Diameter mm	Solid rail mm	kg		Ampere
441-050	100	50	8.2	15 x 5	0.300	10	200
441-265	120	65	10.2	22 x 6	0.560	10	250
441-580	150	80	10.2	22 x 6	0.760	10	250
441-600	200	100	13.0	30 x 8	1.380	10	600

TURNUS ground screw clamps

with fixed and sliding arms made of high-grade malleable cast iron with lug connector on the cast-iron head, with wing nut

Art. no.	Opening mm	Throat depth mm	Diameter mm	Solid rail mm	kg		Ampere
440-150	150	60	10.5	30 x 8	0.760	10	400

TURNUS ground clamps

made of high-grade special-purpose spring steel for cable-lug connection

Art. no.	Ampere	kg	
442-400	400	0.520	5
442-600	600	0.520	5

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ORIGINAL TURNUS Clamping Tools

TURNUS parallel screw clamps

Art. no.	Size	Max. clamping capacity mm	Jaw length mm	kg	
430-028	1	28	50	0.045	1
430-040	2	40	60	0.090	1
430-055	3	55	75	0.160	1
430-070	4	70	100	0.350	1
430-105	5	105	135	0.750	1

Spring clamps

extra sturdy, made of high-grade sheet steel, with strong spring and vulcanized-fiber slip guard, very versatile

Art. no.	Length mm	Spread mm	kg	
516-110	110	40	0.050	10
516-155	155	55	0.150	10

TURNUS C-clamps

Steel clamps

made of high-grade, drop-forged steel,
galvanized, spindle with trapezoidal thread to DIN 103

Art. no.	Max. clamping capacity mm	Throat depth mm	kg	
360-100	60	50	0.87	2
360-200	90	60	1.45	2
360-300	125	90	3.10	1
360-400	160	100	5.40	1
360-500	200	120	9.60	1

Steel screw clamps to DIN 6414

for assembly work

with frame made of high-grade steel, painted blue,
spindle with trapezoidal thread to DIN 103

Art. no.	Max. clamping capacity mm	Throat depth mm	kg	
370-100	100	70	1.7	1
370-150	150	120	3.8	1
370-200	200	160	5.7	1
370-250	250	200	9.8	1
370-300	300	220	12.0	1
370-400	400	250	16.7	1
370-500	500	300	23.3	1

Assembly screw clamps

made of high-grade, drop-forged steel, galvanized,
fine-thread spindle

Art. no.	Max. clamping capacity mm	Throat depth mm	kg	
420-028	28	25	0.17	1
420-053	53	38	0.35	1
420-078	78	50	0.63	1
420-105	105	60	1.10	1
420-130	130	70	1.40	1
420-155	155	76	2.00	1
420-206	206	86	3.00	1

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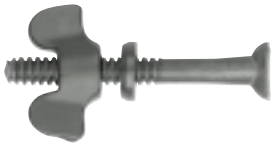
ORIGINAL TURNUS Hand Vises

These hand-held vises for small and hard-to-handle workpieces are indispensable aids for simply and safely holding one or more pieces together for filing, grinding, drilling, bolting, riveting, cementing or some other form of processing.

Hand vise
with broad head and wing nut



Pointed-jaw hand vise
with narrow head and wing nut

Hand vise
with broad head, hexagonal nut and wrench

Hand vises

with broad head and wing nut; strong, highly reliable type designed to satisfy the erstwhile DIN 6498, made of special-purpose, drop-forged tool steel, heat-treated and galvanized, surface-ground jaws, serrated on the inside, with prismatic indent for holding round or angular parts, reinforced shanks with pivot guide and covered, captive round-steel bracing spring, for up to 20,000 MP gripping power

Art. no.	Length mm	Jaw width mm	Spread mm	g	
101-100	100	40	18	330	4
101-120	120	45	22	500	2
101-130	130	42	25	550	2
101-145	145	52	28	730	2
101-160	160	58	35	900	2
101-180	180	60	40	1500	2
101-200	200	65	45	1900	2

Spare spindles

with wing nut and washer

Art. no.	For length mm	Jaw width mm	Spindle diameter mm	g	
101-101	100	74	8	50	1
101-101	120	74	8	60	1
101-131	130	80	9	80	1
101-146	145	92	11	130	1
101-146	160	92	11	150	1
101-181	180	115	13	240	1
101-201	200	125	14	280	1

Pointed-jaw hand vise

Art. no.	Length mm	Jaw width mm	Spread mm	g	
102-120	120	13	20	340	4

Spare spindles

with wing nut and washer

Art. no.	For length mm	Jaw width mm	Spindle diameter mm	g	
101-101	120	74	8	60	4

Hand vise with wrench

Art. no.	Length mm	Jaw width mm	Spread mm	g	
103-180	180	60	40	1600	2
103-200	200	65	45	2100	2

Spare spindles

with hexagonal nut and washer

Art. no.	For length mm	Jaw width mm	Spindle diameter mm	g	
103-181	180	115	13	240	1
103-211	200	125	14	280	1

Spare wrench

Art. no.	For length mm	Spindle diameter mm	g	
103-182	180	13	170	1
103-202	200	14	280	1

TURNUS
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ORIGINAL TURNUS Hand Vises

Double-strength hand vise
with hexagonal nut and wrench

Double-strength hand vises

extra-stout type with wide jaws, with hexagonal nut and wrench, drop-forged, up to 32,000 MP gripping power

for medium-heavy iron construction work

Art. no.	Length mm	Jaw width mm	Spread mm	kg	
106-145	145	58	30	1.25	4
106-180	180	68	40	2.10	2
106-200	200	70	45	2.60	2

Spare spindles

with hexagonal nut

Art. no.	For length mm	Spindle length mm	Spindle diameter mm	kg	
103-181	145	115	13	0.24	1
103-211	180	125	14	0.28	1
106-201	200	135	16	0.35	1

Spare wrenches

Art. no.	For length mm	Spindle diameter mm	kg	
103-182	145	13	0.170	1
103-202	180	14	0.280	1
106-202	200	16	0.320	1

Plumber's hand vise

with hexagonal nut and wrench, drop-forged
with wide jaws, no prismatic indent
with rounded jaw rims, up to 32,000 MP gripping power

made especially for plumber's and fitters

Art. no.	Length mm	Jaw width mm	Spread mm	kg	
107-200	200	85	50	2.70	3

Plumber's hand vise
with hexagonal nut and wrench

Spare spindle

Art. no.	For length mm	Spindle length mm	Spindle diameter mm	kg	
106-201	200	135	16	0.35	1

Spare wrench

Art. no.	For length mm	Spindle diameter mm	kg	
106-202	200	16	0.32	1

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ORIGINAL TURNUS Hand Vises

Machinist's hand vise
with hexagonal nut and wrench

Machinist's hand vises

made especially for maximum loads with broad jaws,
with hexagonal nut and wrench,
drop-forged, up to 45,000 MP gripping power

Art. no.	Length mm	Jaw width mm	Spread mm	kg	
109-160	160	65	40	2.150	2
109-180	180	70	40	2.600	2
109-200	200	80	50	3.450	2
109-250	250	90	60	5.400	1

Spare spindles

with hexagonal nut

Art. no.	For length mm	Spindle length mm	Spindle diameter mm	kg	
106-201	160	135	16	0.300	2
109-181	180	150	18	0.500	2
109-181	200	150	18	0.500	2
109-251	250	180	20	0.700	1

Spare wrench

Art. no.	For length mm	Spindle diameter mm	kg	
109-162	160	16	0.220	1
109-182	180	18	0.320	1
109-182	200	18	0.320	1
109-252	250	20	0.700	1

Saw-sharpening vise

Saw-sharpening and hoop vises

with slender jaws, 45° offset
indispensable for holding saw blades during sharpening, for making hoops, for soldering work, and for holding parts of complicated geometry.
To be used only in combination with a bench vise.

Art. no.	Length mm	Jaw width mm	Spread mm	kg	
112-125	125	30	30	0.650	2
112-150	150	40	35	1.000	2

Pin vises

for sundry precision work, particularly for watchmakers
completely nickel-plated and fine-finished
with knurled handle.
With wide or pointed jaws.


pointed jaws


wide jaws

Art. no.	Type	Length mm	Jaw width mm	kg	
113-115	wide jaws	115	16	0.055	1
113-116	pointed jaws	115	7	0.053	1
113-130	wide jaws	130	20	0.080	1
113-131	pointed jaws	130	10	0.070	1

Complete spare spindles

Art. no.	For length mm	g	
113-117	115	4	1
113-132	130	5	1

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Hexagon Socket Screw Keys

ISO 2936 (DIN 911)

Art. no.	mm	Inside dimensions mm	g	
201-105	1.5	45 x 14	1	100
201-002	2	50 x 16	2	100
201-205	2.5	56 x 18	4	100
201-003	3	63 x 20	5	100
201-305	3.5	68 x 22	8	100
201-004	4	70 x 25	10	100
201-405	4.5	75 x 27	15	100
201-005	5	80 x 28	18	100
201-505	5.5	85 x 30	24	100
201-006	6	90 x 32	30	100
201-007	7	95 x 34	43	50
201-008	8	100 x 36	59	50
201-009	9	105 x 38	79	25
201-010	10	112 x 40	103	25
201-011	11	119 x 42	131	25
201-012	12	125 x 45	160	25
201-013	13	132 x 50	215	20
201-014	14	140 x 55	260	20
201-015	15	140 x 55	290	20
201-016	16	160 x 60	400	10
201-017	17	160 x 63	430	10
201-018	18	170 x 65	510	10
201-019	19	180 x 70	620	10
201-020	20	180 x 70	650	5
201-021	21	200 x 80	860	5
201-022	22	200 x 80	950	5
201-024	24	224 x 90	1250	1
201-027	27	250 x100	1740	1
201-030	30	280 x112	2460	1
201-032	32	315 x125	3080	1
201-036	36	355 x140	4370	1

Allen keys

made of high-grade chrome-vanadium steel **59Cr Mo V4**
with chamfered ends
hardness and torque as per ISO 2936 (DIN 911)
nickel-plated (pre-copperplated)

Art. no.	Size inch / mm	Inside dimensions mm	g	
238-119	3/64 = 1.19	40 x 12	0,6	100
238-127	0.05 = 1.27	40 x 12	0,7	100
238-159	1/16 = 1.59	45 x 14	1	100
238-198	5/64 = 1.98	50 x 16	2	100
238-238	3/32 = 2.38	56 x 18	4	100
238-277	7/64 = 2.77	63 x 20	5	100
238-318	1/8 = 3.18	63 x 20	5	100
238-357	9/64 = 3.57	68 x 22	8	100
238-397	5/32 = 3.97	70 x 25	10	100
238-476	3/16 = 4.76	80 x 28	18	100
238-556	7/32 = 5.56	85 x 30	24	100
238-635	1/4 = 6.35	90 x 32	30	100
238-714	9/32 = 7.14	95 x 35	43	50
238-794	5/16 = 7.94	100 x 36	59	50
238-873	11/32 = 8.73	105 x 38	79	50
238-953	3/8 = 9.53	112 x 40	103	25
239-111	7/16 = 11.11	119 x 42	131	25
239-127	1/2 = 12.70	132 x 50	215	20
239-143	9/16 = 14.29	140 x 55	260	20
239-159	5/8 = 15.88	160 x 60	400	10
239-190	3/4 = 19.05	180 x 70	620	10
239-220	7/8 = 22.20	200 x 80	950	5
239-254	1 = 25.40	250 x 100	1740	1

ISO 2936 L (DIN 911 L) long

Art. no.	mm	Inside dimensions mm	g	
204-105	1.5	90 x 14	2	50
204-002	2	100 x 16	4	50
204-205	2.5	112 x 18	6	50
204-003	3	126 x 20	9	50
204-305	3.5	136 x 22	13	50
204-004	4	140 x 25	19	50
204-405	4.5	150 x 27	25	50
204-005	5	160 x 28	33	50
204-505	5.5	170 x 30	42	50
204-006	6	180 x 32	54	50
204-007	7	200 x 36	80	50
204-008	8	200 x 36	105	50
204-009	9	224 x 40	148	50
204-010	10	224 x 40	185	50
204-011	11	250 x 45	247	20
204-012	12	250 x 45	295	20
204-013	13	280 x 55	370	20
204-014	14	280 x 55	460	20
204-017	17	320 x 63	750	5
204-019	19	360 x 70	1100	5
204-022	22	400 x 80	1650	5
204-024	24	448 x 90	2140	1
204-027	27	500 x100	2980	1

long

Art. no.	Size inch / mm	Inside dimensions mm		
240-159	1/16 = 1.59	90 x 14	2	50
240-198	5/64 = 1.98	100 x 16	4	50
240-238	3/32 = 2.38	112 x 18	6	50
240-318	1/8 = 3.18	126 x 20	9	50
240-357	9/64 = 3.57	136 x 22	13	50
240-397	5/32 = 3.97	140 x 25	19	50
240-476	3/16 = 4.76	160 x 28	32	50
240-556	7/32 = 5.56	170 x 30	42	50
240-635	1/4 = 6.35	180 x 32	56	50
240-714	9/32 = 7.14	200 x 36	80	25
240-794	5/16 = 7.94	200 x 36	105	25
240-873	11/32 = 8.73	224 x 40	146	25
240-953	3/8 = 9.53	224 x 40	183	25
241-111	7/16 = 11.11	250 x 45	247	10
241-127	1/2 = 12.70	280 x 55	360	10
241-429	9/16 = 14.29	280 x 55	470	10
241-588	5/8 = 15.88	320 x 60	665	5
241-905	3/4 = 19.05	360 x 70	1100	5
242-220	7/8 = 22.20	400 x 80	1650	5
242-540	1 = 25.40	500 x 100	2980	1

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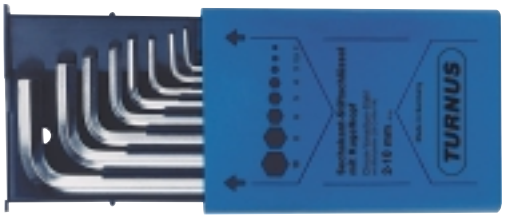
Hexagon Socket Screw Keys to ISO 2936 (DIN 911)



Plastic box (shock-resistant) with sliding lid

Art. no.		Contents		g	
207-008	2 -10 mm	2-2.5-3-4-5-6-8-10	= 8-pce	290	10
207-010	5/64-3/8"	5/64-3/32-1/8-5/32-3/16-1/4-5/16-3/8	= 8-pce	285	10

Self-service box (with anti-theft button)

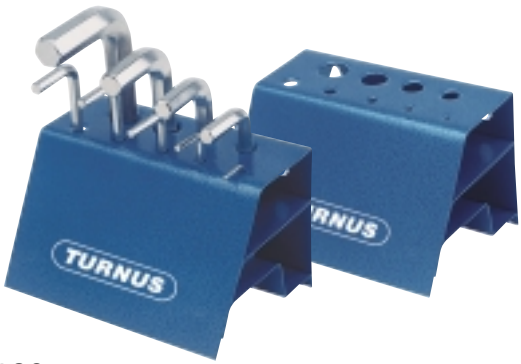
Art. no.		Contents		g	
207-180	2 -10 mm	2-2.5-3-4-5-6-8-10	= 8-pce	290	10
207-280	5/64-3/8"	5/64-3/32-1/8-5/32-3/16-1/4-5/16-3/8	= 8-pce	285	10

Ring set (in self-service hang-up kitbag)

Art. no.		Contents		g	
203-208	2 -10 mm	2-2.5-3-4-5-6-8-10	= 8-pce	270	10
203-280	5/64-3/8"	5/64-3/32-1/8-5/32-3/16-1/4-5/16-3/8	= 8-pce	270	10

Hang-up plastic pouch (in cardboard box)

Art. no.		Contents		g	
203-080	2 -10 mm	2-2.5-3-4-5-6-8-10	= 8-pce	250	10
203-100	2 -14 mm	2-2.5-3-4-5-6-8-10-12-14	= 10-pce	720	10
203-110	0.05-3/8"	0.05-1/16-5/64-3/32-1/8-5/32-3/16-1/4-5/16-3/8	= 10-pce	236	10



Workshop stands

Art. no.		Contents		g	
201-909	2.5 -14 mm	2.5-3-4-5-6-8-10-12-14	= 9-pce	1200	1
202-290	3/32-9/16"	3/32-1/8-5/32-3/16-1/4-5/16 3/8-1/2-9/16	= 9-pce	1250	1
202-909	empty	for all sizes		540	1

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Hexagon Socket Screw Keys to ISO 2937 L (DIN 911 L)

Folding set

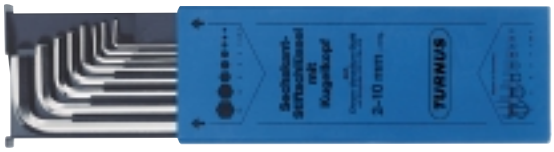
Art. no.		Contents		g	
205-101	1.5 - 6 mm	1.5-2-2.5-3-4-5-6	= 7-pce	150	10
205-102	2.5 - 8 mm	2.5-3-4-5-6-8	= 6-pce	220	10
205-103	3 -10 mm	3-4-5-6-8-10	= 6-pce	320	10
205-104	2.5 -10 mm	2.5-3-4-5-6-8-10	= 7-pce	350	10
205-109	3/32-3/8"	3/32-1/8-5/32-3/16-1/4-5/16-3/8	= 7-pce	370	10

Folding set
with plastic body and lifting device

Art. no.		Contents		g	
205-202	2.5 - 8 mm	2.5-3-4-5-6-8	= 7-pce	170	10
205-204	2.5 -10 mm	2.5-3-4-5-6-8-10	= 7-pce	280	10

3

Hexagon Socket Screw Keys to ISO 2937 L (DIN 911 L) long-arm



Plastic box (impact-resistant)

Art. no.		Contents		g	
207-011	2 -10 mm	2-2.5-3-4-5-6-8-10	= 8-pce	510	10
207-012	5/64-3/8"	5/64-3/32-1/8-5/32-3/16-1/4-5/16-3/8	= 8-pce	510	10

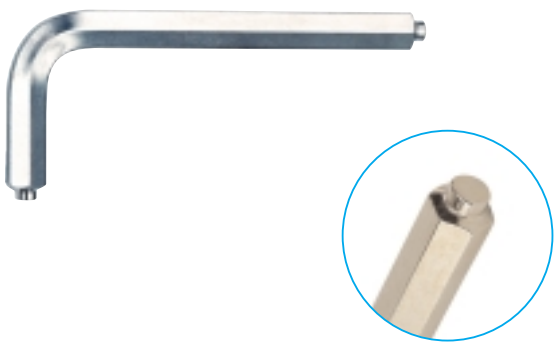
Self-service hang-up plastic pouch

Art. no.		Contents		g	
204-808	2 -10 mm	2-2.5-3-4-5-6-8-10	= 8-pce	415	10
204-809	5/64-3/8"	5/64-3/32-1/8-5/32-3/16-1/4-5/16-3/8	= 8-pce	420	10

Workshop stands, long-arm hexagon socket screw keys

Art. no.		Contents		g	
204-909	2.5 -14 mm	2.5-3-4-5-6-8-10-12-14	= 9-pce	1700	10
204-990	3/32-9/16"	3/32-1/8-5/32-3/16-1/4-5/16-3/8-1/2-/9/16	= 9-pce	1750	10

Hexagon socket screw keys to DIN 6911, with pilot



Art. no.	mm	inside dimensions mm	g	
205-003	3	63 x 20	5	100
205-004	4	71 x 25	10	100
205-005	5	80 x 28	18	100
205-006	6	90 x 32	30	100
205-007	7	95 x 34	43	50
205-008	8	100 x 36	59	50
205-010	10	112 x 40	103	25
205-012	12	125 x 45	160	25
205-014	14	140 x 55	260	20
205-017	17	160 x 60	430	10
205-019	19	180 x 70	617	10
205-022	22	200 x 80	920	5

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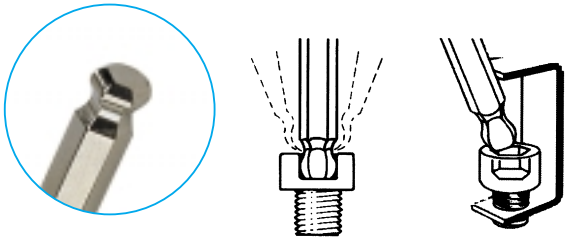
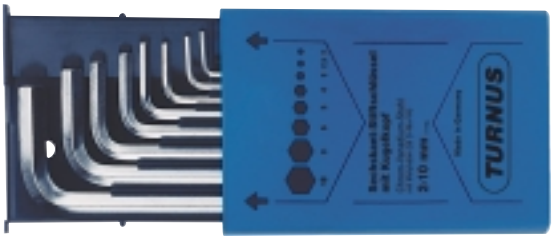
Ballhead Hexagon Socket Screw Keys





Ballhead hexagon socket screw keys

made of high-grade chrome-vanadium steel **59Cr Mo V4**
with chamfered ends, useful in hard-to-access places.
The ballhead enables easy turning at angles up to 30°.
Nickel-plated (pre-copperplated)

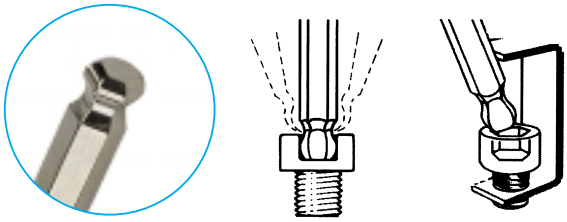
Art. no.	mm	Inside dimensions mm	g	
214-002	2	50 x 16	2	50
214-025	2.5	56 x 18	4	50
214-003	3	63 x 20	5	50
214-004	4	70 x 25	10	50
214-005	5	80 x 28	18	50
214-006	6	90 x 32	30	50
214-007	7	95 x 34	43	25
214-008	8	100 x 36	59	25
214-010	10	112 x 40	103	25

Plastic box (impact-resistant)

Contents: set of short-arm ballhead hexagon socket screw keys

Art. no.	mm	Contents	g	
214-200	2-10	2-2.5-3-4-5-6-8-10 = 8-pce	290	10

Ballhead Hexagon Socket Screw Keys (Long-arm)



Ballhead hexagon socket screw keys, long-arm

Art. no.	mm	Inside dimensions mm	g	
213-015	1.5	90 x 14	2	25
213-002	2	100 x 16	4	25
213-025	2.5	112 x 18	6	25
213-003	3	126 x 20	9	25
213-004	4	140 x 25	19	25
213-005	5	160 x 28	33	25
213-006	6	180 x 32	54	25
213-007	7	200 x 36	80	10
213-008	8	200 x 36	105	10
213-010	10	224 x 40	148	10
213-012	12	250 x 45	295	5

Inch system, long-arm, steel gray

Art. no.	Size "/mm	Inside dimensions mm	g	
213-127	0.05 = 1.27	80 x 12	2	25
213-159	1/16 = 1.59	90 x 14	2	25
213-198	5/64 = 1.98	100 x 16	4	25
213-238	3/32 = 2.38	112 x 18	6	25
213-277	7/64 = 2.77	126 x 20	9	25
213-318	1/8 = 3.18	126 x 20	9	25
213-357	9/64 = 3.57	136 x 22	14	25
213-397	5/32 = 3.97	140 x 25	19	25
213-476	3/16 = 4.79	160 x 28	32	25
213-556	7/32 = 5.56	170 x 30	45	25
213-635	1/4 = 6.35	180 x 32	56	25
213-794	5/16 = 7.94	200 x 36	105	10
213-953	3/8 = 9.53	224 x 40	183	10

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Ballhead Hexagon Socket Screw Keys (Long-arm)

Plastic box (impact-resistant)

Contents: set of long-arm ballhead hexagon socket screw keys

Art. no.	mm ⬢	Contents mm	g	
213-990	2 -10 mm	2-2.5-3-4-5-6-8-10 = 8-pce	510	10

TURNUS hexagon socket screw keys in plastic holder

(inch system, steel-gray)

Art. no.	mm ⬢	Contents mm	g	
215-000	1.5-10 mm	1.5-2-2.5-3-4-5-6-8-10 = 9-pce	380	10
215-001	0.5-5/16"	0.05-1/16-5/64-3/32-1/8 5/32-3/16-7/32-1/4-5/16 =10-pce		10

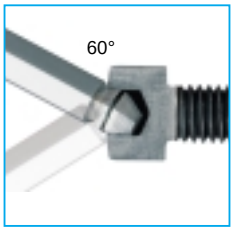
TURNUS hexagon socket screw keys in plastic holder and self-service wallet

Art. no.	mm ⬢	Contents mm	g	
215-002	1.5-10 mm	1.5-2-2.5-3-4-5-6-8-10 = 9-pce	400	10

Hexagon socket screw keys in plastic holder

Art. no.	mm ⬢	Contents mm	g	
215-003	1.5-10 mm	1.5-2-2.5-3-4-5-6-8-10 = 9-pce	340	20

Ballhead Hexagon Socket Screw Keys (Long-arm) with Integrated Retaining Ring



These socket screw keys with bolt/screw-head retaining function are useful problem solvers for tricky cases, e.g., when bolts have to be installed in deep or inclined holes.

A captive spring-steel retaining ring holds and guides the head of the bolt for introduction and tightening in any position.

These hexagon socket screw keys reflect state-of-the-art joining technology. They are supplied as a well-assorted set of sizes in a convenient plastic holder.

9-piece set of socket screw keys

ballhead, long-arm, with retaining ring (from 3-mm)

Art. no.	Size SW/AF	kg	
215-006	1.5-2-3-4-5-6-8-10 mm = 9-pce	0.380	5

Polygon Socket Screw Keys

(L-wrenches for Screws with Internal Serrations to DIN 65253)

For polygon head cap screws (XZN), gunmetal finish

Art. no.	For sizes	Inside dimensions mm	g	
210-005	M 5	72 x 25	15	10
210-006	M 6	80 x 28	23	10
210-008	M 8	90 x 32	40	10
210-010	M10	100 x 36	90	10
210-012	M12	112 x 40	130	10
210-014	M14	125 x 45	200	10
210-016	M16	140 x 56	310	10

TURNUS
a KUKKO - associate enterprise

TORX® Socket Screw Keys

TORX® - socket screw keys

made of high-grade chrome-vanadium steel **59Cr Mo V4**
strength pursuant to standards of the licensor Camcar, Textron, USA

higher torque and more reliability: undulate shape for additional contact area between tool and screw/bolt

main merits of the TORX® system include easier work and less wear

TORX® - socket screw keys, steel-gray

Art. no.	✪	Inside dimensions mm	g	
211-506	TX 6	42 x 16	2	10
211-507	TX 7	48 x 16	2	10
211-508	TX 8	48 x 16	3	10
211-509	TX 9	48 x 16	3	10
211-510	TX 10	51 x 17	4	10
211-515	TX 15	54 x 18	5	10
211-520	TX 20	57 x 19	7	10
211-525	TX 25	60 x 20	10	10
211-527	TX 27	64 x 21	15	10
211-530	TX 30	70 x 24	20	10
211-540	TX 40	76 x 26	30	10
211-545	TX 45	83 x 29	43	10
211-550	TX 50	95 x 32	65	10
211-555	TX 55	108 x 35	120	10
211-560	TX 60	120 x 38	190	10

(Long-arm)

Art. no.	✪	Inside dimensions mm	g	
211-609	TX 9	56 x 16	4	10
211-610	TX 10	62 x 17	5	10
211-615	TX 15	72 x 17	6	10
211-620	TX 20	83 x 18	9	10
211-625	TX 25	90 x 18	12	10
211-627	TX 27	100 x 20	20	10
211-630	TX 30	105 x 24	26	10
211-640	TX 40	112 x 26	45	10

TORX® - hexagon socket screw keys, steel-gray in plastic box (impact-resistant)

Art. no.	✪	Contents		g	
211-505	TX9-TX40	TX9-TX10-TX15-TX20-TX25-TX27-TX30-TX40	= 8-pce	110	10

TORX® - folding set of hexagon socket screw keys

Art. no.	✪	Contents		g	
212-258	TX9-TX40	TX9-TX10-TX15-TX20-TX25-TX27-TX30-TX40	= 8-pce	260	10

TORX® - folding set of hexagon socket screw keys

with plastic body and lifting device

Art. no.	✪	Contents		g	
212-259	TX9-TX40	TX9-TX10-TX15-TX20-TX25-TX27-TX30-TX40	= 8-pce		10

TORX® - ballhead socket screw keys in plastic holder

Art. no.	✪	Contents		g	
212-260	TX9-TX40	TX9-TX10-TX15-TX20-TX25-TX27-TX30-TX40	= 8-pce	160	5

TURNUS
a KUKKO - associate enterprise

T-handle Socket Screw Keys

Blade made of high-grade chrome vanadium steel **59Cr Mo V 4**
handle made of tough propylene (PPN), black, with hook hole

Art. no.	mm	mm	mm	mm	g	
222-090	2	90	70	111	21	10
222-100	2.5	100	70	121	24	10
223-121	3	100	70	121	24	10
223-150	3	150	70	171	30	10
223-200	3	200	70	221	32	10
224-100	4	100	70	121	40	10
224-150	4	150	70	171	47	10
224-200	4	200	70	221	53	10
225-101	5	100	90	126	51	10
225-150	5	150	90	176	60	10
225-200	5	200	90	226	68	10
226-100	6	100	90	126	58	10
226-150	6	150	90	176	77	10
226-200	6	200	90	226	84	10
228-100	8	100	90	126	85	10
228-150	8	150	90	176	105	10
228-200	8	200	90	226	125	10
230-100	10	100	110	130	165	10
230-150	10	150	110	180	190	10
230-200	10	200	110	230	223	10

For adjusting the air-fuel mixture on electronic fuel injection systems used by such makers as BMW, Ford, Fiat and Volvo
Turnus no. 223.200 („K"-Jetronic)
Turnus no. 225.200 („L"-Jetronic)

T-handle hexagon socket screw keys with ballhead

Art. no.	mm	mm	mm	mm	g	
214-310	3	100	70	121	24	10
214-410	4	100	70	121	40	10
214-415	4	150	70	171	47	10
214-510	5	100	90	126	51	10
214-515	5	150	90	176	60	10
214-615	6	150	90	176	77	10
214-620	6	200	90	226	84	10
214-815	8	150	90	176	105	10
214-820	8	200	90	226	125	10
214-910	10	200	110	230	223	10

TORX® - T-handle hexagon socket screw keys

Art. no.	mm	mm	mm	mm	g	
212-108	TX 8	100	70	121	35	10
212-109	TX 9	100	70	121	35	10
212-110	TX 10	100	70	121	35	10
212-115	TX 15	100	70	121	35	10
212-215	TX 15	200	70	221	55	10
212-120	TX 20	100	90	126	50	10
212-220	TX 20	200	90	226	85	10
212-125	TX 25	100	90	126	55	10
212-225	TX 25	200	90	226	85	10
212-127	TX 27	100	90	126	65	10
212-227	TX 27	200	90	226	85	10
212-130	TX 30	100	90	126	65	10
212-230	TX 30	200	90	226	90	10
212-140	TX 40	100	90	126	80	10
212-240	TX 40	200	90	226	110	10
212-145	TX 45	150	110	180	140	10
212-245	TX 45	250	110	280	180	10
212-150	TX 50	150	110	180	160	10
212-250	TX 50	250	110	280	210	10

TURNUS
a KUKKO - associate enterprise

Watchmaker's Screwdrivers - Made-in-Germany Quality

These screwdrivers, with their turning hexagonal heads and fluted steel handles, enable fine-touch transfer of heavy torque. Through their practicality, they have become popular in such fields of technology as optics, metrology, telecommunications and electronics.

Embodiment:
Blades made of tough, heated-treated chrome vanadium steel, with carefully fluted, nickel-plated steel or brass shafts, and strong, hard-wearing steel sleeves.

Watchmaker's screwdrivers

Art. no.	Blade dia. mm	Handle dia. mm	Length mm	g	
250-010	1.0	4	85	8	10
250-015	1.5	4	88	8	10
250-020	2.0	6	102	20	10
250-025	2.5	6	105	20	10
250-030	3.0	8	120	40	10
250-035	3.5	8	120	40	10

Art. no.	Blade dia. mm		Handle dia. mm	Length mm	g	
250-042	1.5	PH 0000	4	8	10	
250-043	2.0	PH 000	4,5	86	9	10
250-044	2.5	PH 00	6	104	20	10
250-045	3.0	PH 0	6	120	40	10

Watchmaker's screwdriver sets

in handy plastic pouch

Set of watchmaker's screwdrivers for cross-head screws - no. 250-500
3 screwdrivers, with 2.0-mm, 2.5-mm and 3.0-mm blades (PH 000/-00/-0)

Set of watchmaker's screwdrivers for slotted/cross-head screws - no. 250-520
6 screwdrivers,
with 1.0-mm, 1.5-mm, 2.0-mm, and 3.0-mm blades and
2.5-mm and 3.0-mm cross-tips (PH 000/-0)

Set of watchmaker's blade-tip screwdrivers - no. 250-540
6 screwdrivers,
with 1.0-mm, 1.5-mm, 2.0-mm, 2.5-mm, 3.0-mm and 3.5-mm blades

Set of watchmaker's blade-tip screwdrivers - no. 250-545
5 screwdrivers, with tough plastic handle
in transparent plastic box
contents: 5 screwdrivers with 1.0-mm, 1.5-mm, 1.8-mm, 2.3-mm and 2.9-mm blades

Set of watchmaker's screwdrivers

in painted and polished box of dry beechwood

Set of watchmaker's cross-tip screwdrivers - no. 250-550
4 screwdrivers, with 1.5-mm, 2.0-mm, 2.5-mm and 3.0-mm cross-tips (PH 000/-000/-00/-0)

Set of watchmaker's blade-tip screwdrivers - no. 250-560
6 screwdrivers, with 1.0-mm, 1.5-mm, 2.0-mm, 2.5-mm, 3.0-mm and 3.5-mm blades

Set of watchmaker's blade-tip/cross-tip screwdrivers - no. 250-570
6 screwdrivers, with
1.0-mm, 1.5-mm, 2.0-mm and 3.0-mm blades and
2.5-mm and 3.0-mm cross-tips (PG 00/-0)

Art. no.	Embodiment	Blades/Tips	g	
250-500	3-pce, plastic pouch	⊕	80	10
250-520	6-pce, plastic pouch	⏀ ⊕	150	10
250-540	6-pce, plastic pouch	⏀	140	10
250-545	5-pce, see-thru box	⏀	70	10
250-550	4-pce, wooden box	⊕	240	5
250-560	6-pce, wooden box	⏀	340	5
250-570	6-pce, wooden box	⏀ ⊕	330	5

TURNUS
a KUKKO - associate enterprise

Watchmaker's Screwdriver with Magazine

This embodiment comprises a brass blade/tip holder with quick-action steel mount and a set of blades/tips that store in the hollow shaft. Thus, this one screwdriver covers a range of applications equal to that of a multi-piece set of "normal" screwdrivers.

Embodiment:
Fluted, nickel-plated brass shaft, with revolving hexagonal centering head.

Watchmaker's blade-tip screwdriver - no. 250-120
with 1.5-mm, 2.0-mm, 2.5-mm and 3.0-mm blades

Watchmaker's cross-tip screwdriver - no. 250-130
with 1.5-mm, 2.0-mm, 2.5-mm and 3.0 mm cross-tips
(Phillips: PH 0000/-000/-00/-0)

Watchmaker's blade-tip/cross-tip screwdriver - no. 250-140
with 1.5-mm, 2.0-mm, 2.5-mm and 3.0-mm blades and a 2.5-mm cross-tip (PH 00)

Art. no.	Length (incl. insert) mm		Diameter mm	g	
250-120	120	⌀	9	13	10
250-130	120	⊕	9	13	10
250-140	120	⌀ ⊕	9	15	10

4

Electronic Screwdriver with Magazine

For use in such fields as electronics, metrology, optics, and telecommunications.

These screwdrivers have a tough plastic shaft and a fine-touch handle with a revolving centering head for precise, finely dosed transfer of torque to even the most sensitive of components.

Electronic blade-tip screwdriver - no. 250-160
with 1.5-mm, 2.0-mm, 2.5-mm and 3.0-mm blades

Electronic cross-tip screwdriver - no. 250-170
with 1.5-mm, 2.0-mm, 2.5-mm and 3.0 mm cross-tips
(Phillips: PH 0000/-000/-00/-0)

Electronic blade-tip/cross-tip screwdriver - no. 250-180
with 1.5-mm, 2.0-mm, 2.5-mm and 3.0-mm blades and a 2.5-mm cross-tip (PH 00)

Art. no.	Length (incl. insert) mm		Diameter mm	g	
250-160	135	⌀	11	20	10
250-170	135	⊕	11	20	10
250-180	135	⌀ ⊕	11	25	10

Set of electronic blade-tip/cross-tip screwdrivers - no. 250-190
in a handy plastic pouch, incl. a blade-tip screwdriver
with 1.5-mm, 2.0-mm, 2.5-mm and 3.0-mm blades, and a cross-tip screwdriver
with 1.5-mm, 2.0-mm, 2.5-mm and 3.0 mm cross-tips
(Phillips: PH 0000/-000/-00/-0)

Art. no.	Embodiment	Blades/Tips	g	
250-190	2-pce, plastic pouch	⌀ ⊕	60	5

TURNUS
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Precision Tools - Made-in-Germany Quality

Tool holder

with fluted brass handle and a pair of exchangeable collets for different diameters.
With square spring nut

Art. no.	Length mm	Holding capacity mm	g	
300-090	90	0-2.5 / 0-1.0 und 1.5-2.5	27	5
300-100	100	0-3.2 / 0-2.1 und 2.2-3.2	37	5
300-110	110	0-4.0 / 0-1.5 und 3.0-4.0	40	5

Tool holder

with fluted and hollow black plastic handle and knurled tightening nut

Art. no.	Length mm	Head-dia. mm	Holding capacity mm	g	
310-105	105	9	0-1.2	11	5
310-110	110	10	1.2-2.0	15	5
310-115	115	12	2.0-3.0	23	5
310-135	135	15	2.0-3.5	45	5
310-160	160	19	3.0-4.5	90	5
310-170	170	21	4.0-6.0	110	5

Tool holder

straight-bored, full-brass, nickel-plated, with fluted handle

Art. no.	Size	Length mm	Holding capacity mm	g	
315-801	1	80	0-1	14	5
315-802	2	80	1-2	14	5

Tool holder

straight-bored handle and both tightening nuts made of fluted, nickel-plated brass.
Induction-hardened collets on both ends

Art. no.	Length mm	Head-dia. mm	Holding capacity mm	g	
320-115	115	10	0-1.5 / 1.5-3	35	5

Nozzle reamers

Made of special-purpose tool steel, induction-hardened and polished, conical shape, pentagonal with square tangs and metal holder

Contents of oval, nickel-plated metal case:

12 assorted reamers
(0.6, 0.65, 0.7, 0.8, 0,85, 0.9, 1.0, 1.3, 1.5, 1.7, 1.9 mm)
1 ea. nickel-plated metal holder

Art. no.	g	
245-004	30	5

TURNUS
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Seal Cutters

Seal cutters

bright-polished prismatic rule with millimeter scale
adjustable cutting blades
with wooden handle

Embodiment:

a) single cutter

b) double cutter

Range of application:
for cutting seals out of rubber, leather, plastic, etc.
Double-cutter version for cutting seal rings

Art. no.	Embodiment	Max. cutting diameter mm	g	
321-200	a)	200	410	1
321-400	a)	400	520	1
321-600	a)	600	620	1
321-800	a)	800	740	1
322-200	b)	200	490	1
322-400	b)	400	590	1
322-600	b)	600	700	1
322-800	b)	800	810	1

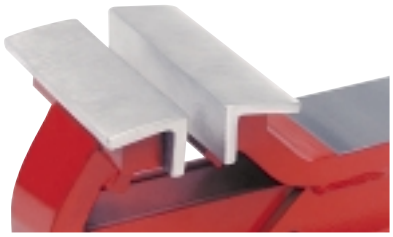
Spare cutting blade

Art. no.	Embodiment
321-801	a) and b) above
322-802	b) above

Solid-steel bench vises

sturdy steel embodiment, guaranteed unbreakable,
with hardened steel jaws and large anvil,
milled-in serrations to ensure a good hold on the workpiece;
100-mm jaw size and larger with built-in pipe jaws,
with two brass screws for readjusting the guide

Art. no.	Jaw width mm	Opening mm	Throat depth mm	Anvil mm	kg	
520-080	80	80	45	70 x 45	4.5	1
520-100	100	100	55	90 x 60	5.2	1
520-125	125	125	75	115 x 80	10.5	1
520-150	150	150	90	135 x 90	15.0	1
520-175	175	175	90	135 x 90	21.5	1



Slide-on jaws

made of aluminum
for gentle clamping of sensitive shapes and materials

Art. no.	Jaw width mm	g	Paar
550-080	80	220	5
550-100	100	280	5
550-115	115	300	5
550-125	125	320	5
550-135	135	350	5
550-150	150	400	5
550-180	180	500	5

TURNUS
a KUKKO - associate enterprise

Hollow Punches

for punching or producing gaskets, seals and seal rings out of rubber, leather, felt, plastic, cork, textiles, etc.

Hollow punches

made of high-grade, special-purpose, drop-forged tool steel
induction-rehardened cutting nose
stout shape
hard-wearing stove-enamel finish
bare punch tube with smooth shaft

Art. no.	For hole dia. mm	g	
Hollow punches			
325-001	1	15	10
325-002	2	15	10
325-003	3	15	10
325-004	4	25	10
325-005	5	25	10
325-006	6	35	10
325-007	7	55	10
325-008	8	65	10
325-009	9	70	10
325-010	10	90	10
325-011	11	95	10
325-012	12	115	10
325-013	13	125	10
325-014	14	175	5
325-015	15	180	5
325-016	16	230	5
325-018	18	350	5
325-020	20	350	5

Note:

To keep from damaging the cutting nose during the punching process, always place the workpiece on a suitable nonmetallic backing material, e.g., wood, plastic or leather.

Set of hollow or arc punches

set of 12 punches in a handy plastic rollkit
Embodiments:

a) set of hollow punches
2 - 3 - 4 - 5 - 6 - 8 - 10 - 11 - 13 - 14 - 16 and 19 mm

b) set of arc punches
3 - 5 - 6 - 8 - 10 - 12 - 13 - 14 - 16 - 19 - 22 and 25 mm

Art. no.	Type	g	
325-120	a)	1356	1
326-120	b)	1650	1

Intermediate sizes available on inquiry.

Arc punches

to DIN 7200
Same quality as described at left, plus conical inner recess

Art. no.	For hole dia. mm	g	
Arc punches			
326-002	2	45	10
326-003	3	45	10
326-004	4	45	10
326-005	5	50	10
326-006	6	70	10
326-007	7	70	10
326-008	8	70	10
326-009	9	100	10
326-010	10	100	10
326-011	11	100	10
326-012	12	140	10
326-013	13	140	10
326-014	14	140	10
326-015	15	140	10
326-016	16	190	10
326-017	17	190	10
326-018	18	190	10
326-019	19	250	10
326-020	20	245	10
326-021	21	290	5
326-022	22	295	5
326-023	23	300	5
326-024	24	390	5
326-025	25	395	5
326-026	26	400	5
326-027	27	425	5
326-028	28	435	5
326-029	29	440	5
326-030	30	450	5
326-031	31	500	5
326-032	32	520	5
326-033	33	620	5
326-034	34	640	5
326-035	35	650	5
326-036	36	660	5
326-037	37	670	5
326-038	38	680	5
326-039	39	690	5
326-040	40	700	5
326-042	42	850	5
326-043	43	950	5
326-044	44	950	5
326-045	45	1000	5
326-046	46	1150	5
326-047	47	1200	5
326-048	48	1250	5
326-049	49	1300	5
326-050	50	1300	1
326-055	55	1850	1
326-060	60	2750	1
326-065	65	3000	1
326-070	70	3500	1
326-075	75	3750	1
326-080	80	4000	1
326-090	90	7750	1
326-100	100	8000	1

TURNUS
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Figure Stamps and Letter Stamps

Lettering to DIN 1451
made of high-grade, hardened and calibrated special-purpose tool steel, induction-hardened heads (58 - 60 HRc), for stamping materials with up to 120 kp/mm² hardness, sharp-cut

Figure stamps

9-piece set in plastic box

TURNUS-EXTRA quality with extra-strong shaft

Art. no.	Figure height mm	⌀	g/set	
330-002	2	7 x 70	260	5
330-003	3	7 x 70	260	5
330-004	4	8 x 70	330	5
330-005	5	9 x 70	420	5
330-006	6	10 x 75	520	5
330-007	7	10 x 75	520	5
330-008	8	12 x 80	800	5
330-010	10	14 x 80	1100	5
330-012	12	16 x 90	1500	5
330-015	15	16 x 90	1500	1
330-020	20	18 x 95	2180	1

TURNUS-STANDARD quality with slender shaft

Art. no.	Figure height mm	⌀	g/set	
328-102	2	6 x 65	150	5
328-103	3	6 x 65	150	5
328-104	4	7 x 65	230	5
328-105	5	8 x 65	300	5
328-106	6	9 x 70	420	5
328-108	8	11 x 75	650	5
328-110	10	12 x 80	800	5
328-112	12	14 x 80	1100	5

Letter stamps

27-piece set (upper case) in plastic box

TURNUS-EXTRA quality with extra-strong shaft

Art. no.	Letter height mm	⌀	g/set	
331-002	2	7 x 70	780	2
331-003	3	7 x 70	780	2
331-004	4	8 x 70	990	2
331-005	5	9 x 70	1260	2
331-006	6	10 x 75	1560	2
331-007	7	10 x 75	1560	2
331-008	8	12 x 80	2400	2
331-010	10	14 x 80	3300	1
331-012	12	16 x 90	4500	1
331-015	15	16 x 90	4500	1
331-020	20	18 x 95	5700	1

TURNUS-STANDARD quality with slender shaft

Art. no.	Letter height mm	⌀	g/set	
329-202	2	6 x 65	450	3
329-203	3	6 x 65	450	3
329-204	4	7 x 65	690	3
329-205	5	7 x 65	690	3
329-206	6	9 x 70	1260	3
329-208	8	11 x 75	1950	3
329-210	10	12 x 80	2400	3
329-212	12	14 x 80	3300	3

available options:

a) individual stamps
(price approx. 1/9 of normal rate plus 100 % markup)
b) extra-heavy quality to DIN 7353
c) lower-case letters
d) mirror-inverted characters for molds and dies
e) custom characters as drawn

TURNUS
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Hammers - Made-in-Germany Quality

Engineer's hammers, nos. 344 and 345 DIN 1041

with double-flared shaft, black, kind-to-skin coating and special non-slip-textured grip

Art.-no. Hickory	Ash	Nominal weight (hammer head)	Overall length mm	g	
344-010	345-010	100 g	260	170	12
344-020	345-020	200 g	280	270	12
344-030	345-030	300 g	300	425	12
344-050	345-050	500 g	320	635	12
344-080	345-080	800 g	350	1025	6
344-100	345-100	1000 g	360	1235	6
344-150	345-150	1500 g	380	1620	6
344-200	345-200	2000 g	400	2220	6

Hammer head made of drop-forged high-grade steel, carefully hardened and tempered, painted black. Striking face and edge finely polished, with accurate chamfer.

Spare shafts, complete with ring wedge

Art.-no. Hickory*	Ash	For hammers with nom. weight	g	
344-011	345-011	100 g	60	10
344-021	345-021	200 g	70	10
344-031	345-031	300 g	125	10
344-051	345-051	500 g	135	10
344-081	345-081	800 g	225	10
344-101	345-101	1000 g	230	10
344-151	345-151	1500 g	260	10
344-201	345-201	2000 g	340	10

* (seasoned, naturally matured wood)

Engineer's hammers with shaft protector, no. 346 DIN 1041

with double-flared ashwood shaft,
with black, kind-to-skin coating and special non-slip-textured grip

The strong, steel, shaft-protecting sleeve is durably welded to the hammer head and extends the shaft's seat beyond the eye of the hammer, the latter not being simply round as in conventional types, but instead fully oval (DIN 1041). This considerably enhances the hammer's flexural strength.

Head made of high-grade drop-forged steel, carefully hardened and tempered, painted black. Striking face and cross peen finely polished, with accurate chamfer.

Art.-no. Ash	Nominal weight (hammer head)	Overall length mm	g	
346-010	100 g	260	170	12
346-020	200 g	280	270	12
346-030	300 g	300	425	12
346-050	500 g	320	635	12
346-080	800 g	350	1025	6
346-100	1000 g	360	1235	6

Spare shafts, complete with ring wedge

Art.-no. Ash*	For hammers with nom. weight	g	
346-011	100 g	60	10
346-021	200 g	70	10
346-031	300 g	125	10
346-051	500 g	135	10
346-081	800 g	225	10
346-101	1000 g	230	10

* (seasoned, naturally matured wood)

TURNUS
a **KUKKO** - associate enterprise

Hammers - Made-in-Germany Quality

Merchandiser for TURNUS engineer's hammers.

This merchandiser fits any perforated toolboard, saves space, and makes for a perfect presentation.

Its complement comprises 40 engineer's hammers in various common commercial sizes: eleven 200 g hammers, nine 300 g hammers, eight 500 g hammers, six 800 g hammers, and six 1000 g hammers (nominal weight).

Art. no.	Description	kg	
347-000	Merchandiser, empty	2.2	1
347-344	Merchandiser, with 40 engineer's hammers, type 344	25.3	1
347-345	Merchandiser, with 40 engineer's hammers, type 345	25.3	1
347-346	Merchandiser, with 40 engineer's hammers, type 346	27.0	1

Merchandisers with a full complement of hammers cost only the price of the hammers, i.e., the merchandiser itself is provided free of cost.

Club hammers - no. 348 DIN 6475

with flared ashwood handle, black kind-to-skin coating and special non-slip-textured grip

Forged steel head, carefully hardened, tempered and painted black. Striking faces finely ground and polished, with accurate chamfer.

Art. no.	Nominal weight (hammer head)	Overall length mm	kg	
348-100	1000 g	260	1200	5
348-125	1250 g	260	1400	5
348-150	1500 g	280	1730	5
348-200	2000 g	300	2250	5

Spare handles, complete with ring wedge

Art. no.	For hammers with nom. weight	kg	
348-101	1000 g und 1250 g	150	5
348-151	1500 g	230	5
348-201	2000 g	230	5

* (seasoned, naturally matured wood)

Sledge hammers - no. 349 DIN 1042

with natural-varnished ashwood handle and black, flared grip

Forged steel head, carefully hardened, tempered and painted black. Striking faces finely ground and polished, with accurate chamfer.

Art. no.	Nominal weight (hammer head)	Overall length mm	kg	
349-300	3000 g	600	3500	2
349-400	4000 g	700	4700	2
349-500	5000 g	800	6000	2
349-600	6000 g	800	7000	2

Spare handles, complete with ring wedge

Art. no.	For hammers with nom. weight	kg	
349-301	3000 g	500	5
349-401	4000 g	700	5
349-501	5000 g und 6000 g	1000	5

* (seasoned, naturally matured wood)

TURNUS
a KUKKO - associate enterprise

Non-rebounding Mallets

with special heavy-duty heads,
heat-resistant (90°C)

Art. no.	Striking-face Ø	kg	
343-035	35 mm	0,400	12
343-050	50 mm	0,810	12
343-060	60 mm	1,270	12

Files

Metalworker's files with plastic handles — DIN 7261

in TURNUS self-service pouch

Hand files

Art. no.	Length of cut mm	Cut	kg	
350-152	150	2	90	10
350-202	200	2	180	10
350-252	250	2	320	10

Three-square files

Art. no.	Length of cut mm	Cut	kg	
351-152	150	2	70	10
351-202	200	2	150	10
351-252	250	2	250	10

Round files

Art. no.	Length of cut mm	Cut	kg	
352-152	150	2	50	10
352-202	200	2	100	10
352-252	250	2	170	10

Half-round files

Art. no.	Length of cut mm	Cut	kg	
353-152	150	2	80	10
353-202	200	2	170	10
353-252	250	2	128	10

Metalworker's files in rollkit (4-piece)

This practical rollkit keeps its complement of files orderly, clearly arranged and, above all, findable. Each assortment includes a flat file, a three-square file, a round file and a half-round file, all with 2 cut.

Art. no.	Length of cut mm	Cut	kg	
354-152	150	2	300	5
354-202	200	2	600	5
354-252	250	2	1100	5

Merchandiser for TURNUS metalworker's files

This space-saving merchandiser presents the complete line of Turnus metalworker's files in various lengths of cut - 150 mm, 200 mm and 250 mm - all clearly arranged and inviting.

Art. no.	Description	kg
355-000	Merchandiser, empty, with no files	1.5
355-060	Merchandiser, with full complement of 60 files: 5 each ◗ ▮ ● ▲ in three different lengths of cut (150 mm, 200 mm and 250 mm)	11.1

Merchandisers with a full complement of metalworker's files cost only the price of the files, i.e., the merchandiser itself is provided free of cost.

TURNUS
a **KUKKO** - associate enterprise

Files

Set of high-quality warding files in plastic pouch - DIN 7261

Set includes 6 different warding files with wooden handles, 100-mm double cut for professional needs.

Art. no.	Set of 6 warding files	length of cut mm	kg	
356-006	◗▮●▮▲■	100	0.12	5

Rethreading files

For repairing and cleaning out damaged male and female threads. Each easy-to-use file has eight different pitches. The right pitch is determined by placing the rethreading file across the damaged thread, and repairs are executed in normal filing or shaving manner.
Rethreading files cost little and save a lot. No fitter should be without a set. Each file has its own practical plastic sheath for safekeeping.

Art. no.	Rethreading file	kg	
357-971	for metric threads (ISO) with 0.8 - 1 - 1.25 - 1.5 - 1.75 - 2 - 2.5 - 3 mm pitches	0.10	2
357-972	for Whitworth and B.S.F. threads with 10 - 11 - 12 - 14 - 16 - 18 - 20 - 24 turns/inch pitches	0.11	2
357-973	for SAE (UNF/UNC) threads with 11 - 12 - 14 - 16 - 18 - 20 - 24 turns/inch pitches	0.11	2
357-974	for pipe/gas threads, G 1/8"- 1/4" - 3/8" - 1/2" - 5/8" - 3/4" - 7/8" - 1"	0.11	2

Set of bolt extractors in plastic pouch

for pulling broken bolts and screws. First, a standard twist bit (cf. table) is used to drill a hole in the piece to be removed. Then, the extractor is inserted in the hole and turned counter-clockwise to remove the broken piece.

Embodiment:
American pattern with coarse lead. Made of tough, through-hardened chrome vanadium steel.

Art. no.	Set of bolt extractors	kg	
359-490	6 bolt extractors	0.200	1

Specification table

no.	for bolt mm	inch	Hole-drilling bit
1	13 - 26	1/8 - 1/4	1.8 mm
2	6 - 8	1/4 - 5/16	3.0 mm
3	8 - 11	5/16 - 7/16	4.0 mm
4	11 - 14	7/16 - 9/16	6.0 mm
5	14 - 18	9/16 - 3/4	8.0 mm
6	18 - 24	3/4 - 1	12.0 mm

Nut splitters

Art. no.	Width across flats mm	inch	kg	
358-550	4 - 10 mm	5/32 - 1 3/32	0.10	1
358-551	10 - 18 mm	7/16 - 1 1/16	0.22	1
358-552	19 - 27 mm	3/4 - 1 1/16	0.44	1
358-553	27 - 36 mm	1 1/8 - 1 7/16	0.66	1

Art. no.	Spare chisel for nut splitter no.	
358-500	358-550	1
358-501	358-551	1
358-502	358-552	1
358-503	358-553	1

Note:
Nut splitter chisels are wearing parts. A blunt, notched or broken chisel must be replaced immediately.

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Metal-cutting Saws

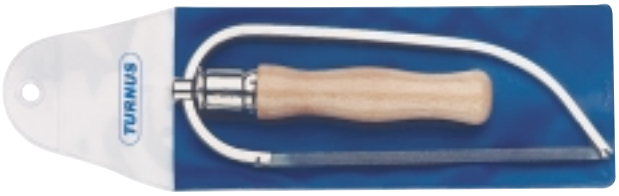
Hacksaw frames

made of sturdy, high-grade steel, powder coated, 18 x 8 mm
with cross-recessed square spanners and captive blade-retaining pins,
with polished wooden handle and
high-quality HSS saw blade, thoroughly hardened, 300 mm long

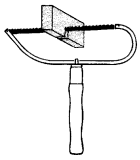
Art. no.	Blade length mm	Overall length mm	g	
960-300	300	500	800	6

Hacksaw PUK

made of high-quality rod stock, bright-zinc galvanized finish
with stationary wooden handle
including hacksaw blade; ideal small saw for craftspeople,
do-it-yourselfers and household chores



Pocket saw PUK



in handy plastic pouch
nickel-plated, freely adjustable handle
with „universal“ hacksaw blade

Art. no.	Blade length mm	Overall length mm	g	
970-100	125	290	120	6
970-200	125	310	140	12

PUK saw blades

Art. no.	Type	g	
970-310	a) universal	38	12
970-312	b) metal	38	12
970-320	c) wood, fine	38	12
970-313	d) wood, coarse	35	12

Revolving Punch Pliers (Professional Workshop Models)

standard punch pliers,

body made of stamped special tool steel
checkered, red powder-coated handles
replaceable, hardened and ground punch tubes
punch-tube diameters of 2 - 2.5 - 3 - 3.5 - 4 and 4.5 mm
with integrated lock

Range of applications:
for punching holes in leather, cardboard, rubber, textiles, etc.

Compound leverage revolving punch pliers

for easy punching (up to 70 % less effort required)
body made of stamped high-strength special steel
handles with red non-slip kind-to-skin PVC grips
removable grip arrestor, replaceable,
hardened and ground punch tubes, punch-tube diameters of 2 - 2.5 - 3 - 3.5 - 4 and 4.5 mm, with window telling the hole-size setting

Art. no.	Designation	Type	Length mm	"	g	
750-220	punch pliers	standard	220	9	270	6
750-250	punch pliers	heavy-duty model	250	10	430	1
750-251	set of spares	to fit all models			1	
750-252	set of supplements	to fit all models			1	

Set of spare punch tubes
with special tool for quick and easy replacement of old punch tubes and
set of spare punch tubes with diameters of 2 - 2.5 - 3 - 3.5 - 4 and 4.5 mm

Set of supplementary punch tubes
with special tool for quick and easy replacement of old punch tubes and
set of punch tubes measuring 1 - 1.5 - 5 - 5.5 and 6 mm

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Pipe Wrenches

Swedish pattern pipe wrench „S-type“ DIN 5234

made of high-grade drop-forged chrome vanadium steel

jaw teeth leaning opposite to the direction of pull and additionally induction (re)hardened - self-gripping
slender S-shaped jaw design featuring 45° angle for 3-point gripping of pipes
double-T-section handle with captive adjusting nut

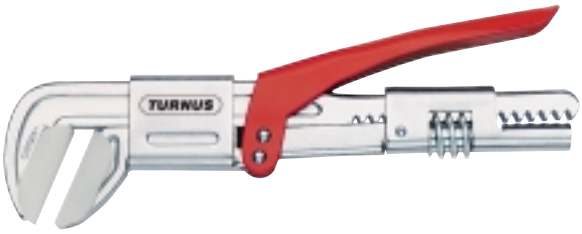
Art. no.	Length mm	Gripping range for pipes "	for sockets "	g	
735-320	320	1	1 1/4	800	1
735-420	420	1 1/2	1 3/4	1400	1
735-550	550	2	2 1/4	2550	1

Chain pipe wrench

for working in cramped quarters

hardened, double-sided serrated jaws enable alternate tightening and loosening of the chain around the pipe without having to reset the wrench (as would be necessary for a conventional-type chain pipe wrench).

Art. no.	Length mm	"	Gripping range mm	"	g	
736-300	300	12	100	4.0	850	1



Plumbing fixture wrench

made of high-grade drop-forged chrome vanadium steel

with smooth jaws and slip-on plastic liners to protect the sensitive surfaces of modern, chrome-plated or color-coated bathroom fixtures
jaw length 45 mm
with roll adjuster and locking lever to preclude slippage despite high-leverage gripping action
all stressed parts hardened
nickel-plated, red powder-coated lever

Art. no.	Length mm	"	Max. clamping capacity mm	"	g	
770-275	275	11	65	2 1/2	790	6

Sanitary lever wrench

made of high-grade, drop-forged chrome vanadium steel

with swiveling L-handle, incl. reversible steel dog for right-hand and left-hand rotation
wrench painted

Art. no.	Length mm	"	Opening mm	A.F.	g	
780-240	240	9 1/2	10-32	3/8"-1 1/4"	425	2

Adjustable steel wrench (Monkey wrench)

French type

smooth-turning, drop-forged high-precision type

with hardened heads and polished faces
straight, smooth jaws
generous adjusting range
diamond-knurled round-steel handle

Art. no.	Length mm	"	Max. opening mm	"	g	
831-200	200	8	50	2	550	2
831-250	250	10	72	3	1100	2
831-315	315	12	100	4	1800	2

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Water Pump Pliers / Multigrip Pliers

to ISO 8976 (DIN 5231)
made of high-grade oil-hardened chrome vanadium steel
with induction (re)hardened - and therefore particularly durable and hard-wearing - slip joint and teeth
gripping surface hardness: 45 - 48 HRC
head and slip joint ground and polished
with anti-squeeze guard to prevent injury by pinching

Quickfix

one-hand pushbutton adjustment directly on the workpiece, with box joint (double-carried pivot bolt)
11-position fine adjustment
no unintentional shifting
self-gripping for one-hand operation
for pipes sized 1/8 inch to 1 ¼ inch and nuts sized 10 - 36 mm AF
Type a) chrome-plated, handles with red non-slip kind-to-skin PVC coating
Type b) chromed, with checkered handles

Profix

with box joint (double-carried pivot bolt)
7-position adjustment
self-seating through optimally serrated recess, for pipes sized 1/8 inch through 1 ¼ inch and nuts sized 10 - 32 mm AF
Type a) black powder-coated handles with red non-slip kind-to-skin PVC coating
Type b) red lacquer finish, with checkered handles

Ecofix

made of high-grade tool steel
with slip joint
7-position adjustment
serrated recess
induction-(re)hardened teeth
with anti-squeeze guard to prevent injury by pinching
for pipes sized up to 2 inches and nuts up to 45 mm AF
Type a) nickel-plated, handles with blue non-slip kind-to-skin PVC coating
Type b) nickel-plated, with checkered handles

Art. no.	Designation	Handles mm	Length "	g		
720-250	Quickfix	a) PVC coating	250	10	520	6
720-251	Quickfix	b) checkered	250	10	500	6
721-240	Profix	a) PVC coating	240	9 1/2	300	6
721-241	Profix	b) checkered	240	9 1/2	290	6
724-240	Ecofix	a) PVC coating	245	9 3/4	300	6
724-241	Ecofix	b) checkered	245	9 3/4	280	6

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Universal Combination Pliers

to ISO 5746 (DIN 5244)
made of high-grade drop-forged tool steel
with serrated jaws
induction- (re)hardened cutting edges
handy model with slender head
for soft, medium and hard wire
Type a) chrome-plated, polished head, handles with red non-slip kind-to-skin coating
Type b) chrome-plated, polished head, good-grip plastic handles with slip guard
Type c) VDE-insulated (VDE/IEC 1000 V), nickel-plated and chrome-plated, highly polished head, with insulated good-grip plastic handles and slip guard

Art. no.	Model	Handles	Length mm	"	g	
725-180	Univ. combination	a) PVC-coated	180	7	240	6
725-181	Univ. combination	b) good-grip plastic	180	7	220	6
725-182	Univ. combination	c) VDE-isoliert	180	7	260	6

Side-cutting nippers

to ISO 5749 (DIN 5238)
made of high-grade drop-forged special tool steel
additionally induction-(re)hardened cutting edges
for soft, medium and hard wire
Type a) polished head, handles with red non-slip hand-to-skin PVC coating
Type b) VDE-insulated (VDE/IEC 1000 V), nickel-plated and chrome-plated, highly polished head, with insulated good-grip plastic handles and slip guard

Art. no.	Model	Handles	Length mm	"	g	
726-160	Side nippers	a) PVC-coated	160	6 1/2	190	6
726-161	Side nippers	b) VDE-insulated	160	6 1/2	210	6

Long-nose side-cutting pliers (radio/telephone pliers)

to ISO 5745/6 (DIN 5236)
made of high-grade drop-forged special tool steel
additionally induction (re)hardened cutting edges (to approx. 60 HRC)
for medium-hard wire
slender, handy shape to fit in any pocket
polished head, handles with red non-slip kind-to-skin PVC coating
Type a) straight head
Type b) head bent 45°

Art. no.	Type of head	Length mm	"	g	
727-160	a) straight	160	6 1/2	140	6
727-161	b) bent	160	6 1/2	140	6

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Circlip Pliers

to DIN 5254 / DIN 5256, made of high-grade drop-forged chrome vanadium steel, individually heat-treated according to a high-frequency induction, hardening process
total hardness: 45 - 48 HRC, strong, accurate cylindrical tips, tips additionally induction (re)hardened, industrial type, black finish, with checkered handles, industrial type, black finish, with checkered handles

Service set of circlip pliers

complete set of straight and bent circlip pliers for shaft/bore circlips in a handy case

Art. no.	Designation	Description: for shaft/bore circlips	kg	
728T729	set (8-pce)	Size: -1,-2,-11,-21	2.90	823138

Circlip pliers for shaft circlips, straight

Circlip pliers for shaft circlips, bent

Circlip pliers for bore circlips, straight

Circlip pliers for bore circlips, bentv

for shaft circlips (DIN 471)

Art. no.	for circlip sizes:	Shaft Ø mm	Form DIN	Type	g	
728T-A1	A 1	10-25	A	straight	80	6
728T-A2	A 2	19-60	A	straight	140	6
728T-A3	A 3	40-100	A	straight	200	6
728T-A4	A 4	85-165	A	straight	465	6
728T-A11	A 11	10-25	B	bent 90°	80	6
728T-A21	A 21	19-60	B	bent 90°	140	6
728T-A31	A 31	40-100	B	bent 90°	200	6
728T-A41	A 41	85-165	B	bent 90°	465	6

for bore circlips (DIN 472)

Art. no.	for circlip sizes:	Shaft Ø mm	Form DIN	Type	g	
729T-J1	J 1	10-25	C	straight	85	6
729T-J2	J 2	19-60	C	straight	135	6
729T-J3	J 3	40-100	C	straight	200	6
729T-J4	J 4	85-165	C	straight	410	6
729T-J11	J 11	10-25	D	bent 90°	85	6
729T-J21	J 21	19-60	D	bent 90°	135	6
729T-J31	J 31	40-100	D	bent 90°	200	6
729T-J41	J 41	85-165	D	bent 90°	410	6

6

Carpenter's and Tower Pincers

Edged pincers (carpenter's pincers)

to ISO 9243 (DIN 5241), „classical" model for highest standards, made of high-grade drop-forged, oil-hardened special tool steel with hard-wearing, precision cutting edges for uniform cutting and handy operation, black finish with polished head

Tower pincers (concretor's/steel fixer's nippers)

to ISO 9242 (DIN 5242)
made of high-grade drop-forged, oil-hardened special tool steel with exceptionally slender head and long handles
high-strength cutters, ground to precision
smooth-working, black finish with polished head
designed especially for binding, twisting and cutting wires in concreting work and any number of other wirework situations.

Art. no.	Designation	Length mm	"	g	
731-180	Edged pincer	180	7	330	6
732-225	Tower pincer	225	8 1/2	340	6

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TURNUS „Redgrip“ Pliers

Body made of high-grade spring steel,
with drop-forged, hardened and tempered, heavy-duty chrome vanadium steel jaws
with quick-release lever
high gripping power via toggle action,
knurled-screw adjustment,
powder coated with durable red epoxy coating for sure, slip-free handling.

Universal Grip

oval jaws with wire cutter
for safe clamping, gripping and holding of flat and round shapes

Art. no.	Designation	Length mm	Length "	Max. clamping capacity mm	g	
690-125	Universal-Grip	125	5	32	180	5
690-180	Universal-Grip	180	7	35	370	5
690-250	Universal-Grip	250	10	50	570	5
690-300	Universal-Grip	300	12	65	930	5

Opti-Grip

with lower-jaw prism and wire groove
for safe clamping, gripping and holding of any - particularly angular - shape
absolutely reliable lengthwise retention of wire and small parts in the jaw point

Art. no.	Designation	Length mm	Length "	Max. clamping capacity mm	g	
691-180	Opti-Grip	180	7	25	280	5
691-250	Opti-Grip	250	10	32	490	5
691-300	Opti-Grip	300	12	45	975	5

Ideal Grip

with double-prism jaws
for safe clamping, gripping and holding of all - particularly round, square and hexagonal - shapes both large and small

Art. no.	Designation	Length mm	Length "	Max. clamping capacity mm	g	
692-250	Ideal-Grip	250	10	45	570	5

Parallel-Plus Grip

lower jaw with „live“ gripping segment for a sure,
planar grip,
specially designed jaw allows both parallel and prismatic gripping

Art. no.	Designation	Length mm	Length "	Max. clamping capacity mm	g	
693-250	Parallel-Plus	250	10	45	620	5

Sheet Metal Grip

with flat, wide jaws for clamping flat workpieces to facilitate bending, seaming, forming and crimping work,
ideal for plumbers and tinners

Art. no.	Designation	Length mm	Length "	Max. clamping capacity mm	g	
694-275	sheet-metal-Grip	180	7	25	370	5

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TURNUS Welding Grip Pliers

Welding grip

with strong, U-shaped jaws made of drop-forged special steel,
upper jaw set at right angles to lower jaw
used for centrical gripping of flats and sections for butt-joint welding

Tube-welding grip pliers

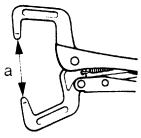
with strong, U-shaped, drop-forged jaws,
prismatically offset upper jaw
reliable three-point support
specially designed for centrical gripping of tubes and rounds
for welding

Locking C-grip pliers

with strong but slender C-shaped, drop-forged and heat-treated frame jaws,
particularly good at gripping U and T sections with high webs, as well as for bulky and narrow workpieces

C-grip
with slender jaw ends for good gripping,
even in awkward, confined spaces

Parallel C-grip
with self-leveling swivel pads for reliably parallel,
planar gripping action



Art. no.	Designation	Length mm	Length "	Opening mm	g	
695-280	Welding grip	280	11	55	850	5
696-280	Tube-welding grip	280	11	10-90	850	5
697-280	C-grip	280	11	a) 90	750	5
698-280	Parallel C-grip	280	11	a) 75	750	5

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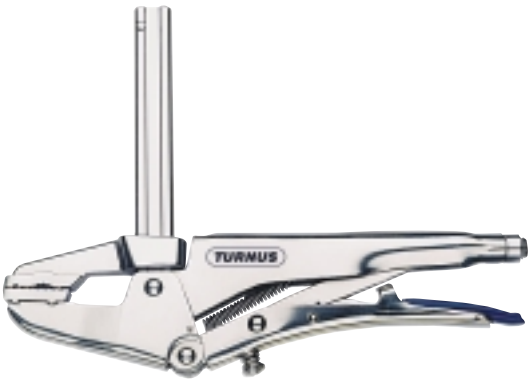

Parallel grip pliers

heat-treated guide rail
fine-threaded sliding arm made of heat-treated special steel,
serrated clamping faces made of hardened chrome vanadium steel
adjustable gripping power up to 4000 N
Infinitely adjustable plier-jaw parallelism up to 9° either way
quick adjustment via release lever with opening limiter

Range of application:
for parallel gripping of flats, rounds and sections with thicknesses up to 100 mm or 200 m, respectively; very versatile

Art. no.	Max. gripping capacity mm	Max. gripping capacity "	Throat depth mm	Throat depth "	g	
685-100	100	4	65	2 1/2	1000	1
685-200	200	8	65	2 1/2	1200	1

Grip pliers, French type

with quick-adjusting lower jaw
body made of high-grade spring steel
jaw made of drop-forged, heat-treated chrome vanadium steel
with prismatic longitudinal groove for safe retention of wire and thin rounds,
broad gripping range with threefold quick-adjusting feature and one-hand fine adjustment

Art. no.	Max. gripping capacity mm	Max. gripping capacity "	Length mm	Length "	g	
686-250	35	1 1/2	250	10	500	5

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TURNUS Plumbing Pliers

Folding tongs

made of high-quality special tool steel, drop-forged, heat-treated and painted.
Especially stout, with sturdy jaws, lap joint
Handles with nonslip PVC coating

Art. no.	Designation	Form	Length mm	"	Jaw width mm	g	
781-280	folding tongs	straight	280	11	60	700	5

Art. no.	Designation	Form	Length mm	"	Jaw width mm	g	
782-280	folding tongs	bent 45°	280	11	60	700	5

Art. no.	Designation	Form	Length mm	"	Jaw width mm	g	
783-280	folding tongs	bent 90°	280	11	60	700	5

Art. no.	Designation	Form	Length mm	"	Jaw width mm	g	
784-280	corner folding tongs	straight	280	11	60	700	5

Tinsmith's pliers

made of high-quality special tool steel, drop-forged, heat-treated, stout design, twist-proof.
Handles with nonslip PVC coating

Art. no.	Designation	Length mm	"	g	
786-250	flat-nose pliers	250	10	400	5

Art. no.	Designation	Length mm	"	g	
787-250	round-nose pliers	250	10	400	5

Gutter bracket beading pliers

box-type

made of unbreakable nodular cast iron, with wooden handles and adjusting screw for bracket sizes up to 40 x 6 mm

Art. no.	Length mm	"	g	
789-530	530	21	2,9	5

TURNUS WINKELGREIF

Dealer Tools

Clamp trolley

sturdy, collapsible, painted metal frame,
useful either as a shop tool car or as a merchandiser
compact, high-capacity trolley for easily surveyed arrangement of clamps;
equally easy to load, with supplementary holder on one side for extra-long general-purpose clamps

Art. no.	Width mm	Depth mm	Height mm
999-000	1170	580	1610
999-003	Extra holder		

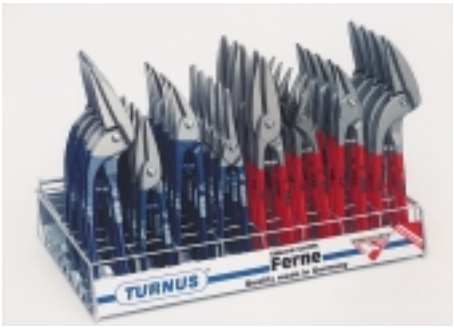
Presentation stand

Practical CARTON for quick and easy conversion to an on-counter or near-register dealer's aid.

Holds dealer's choice of clamps, pliers, shears or the like.

Particularly good for sales representation.

Art. no.	Width mm	Depth mm	Height mm
999-100	100	360	100-370



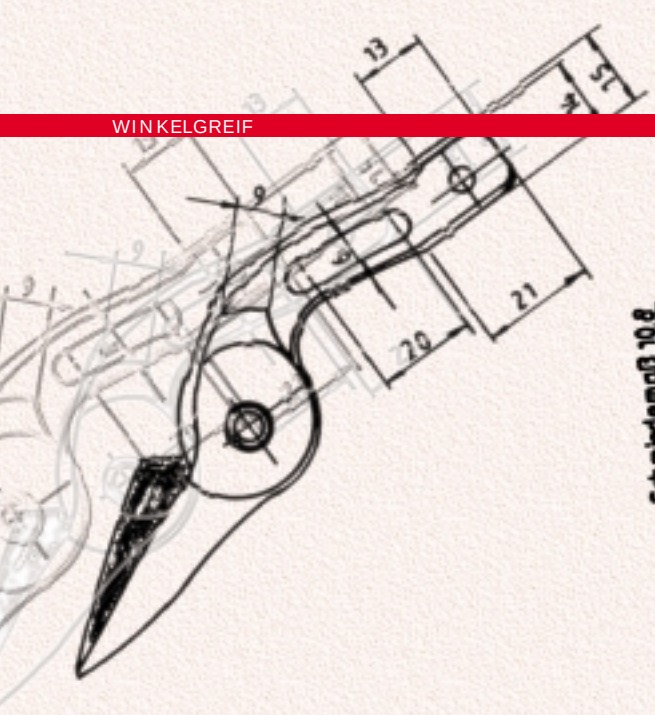
Product dispenser

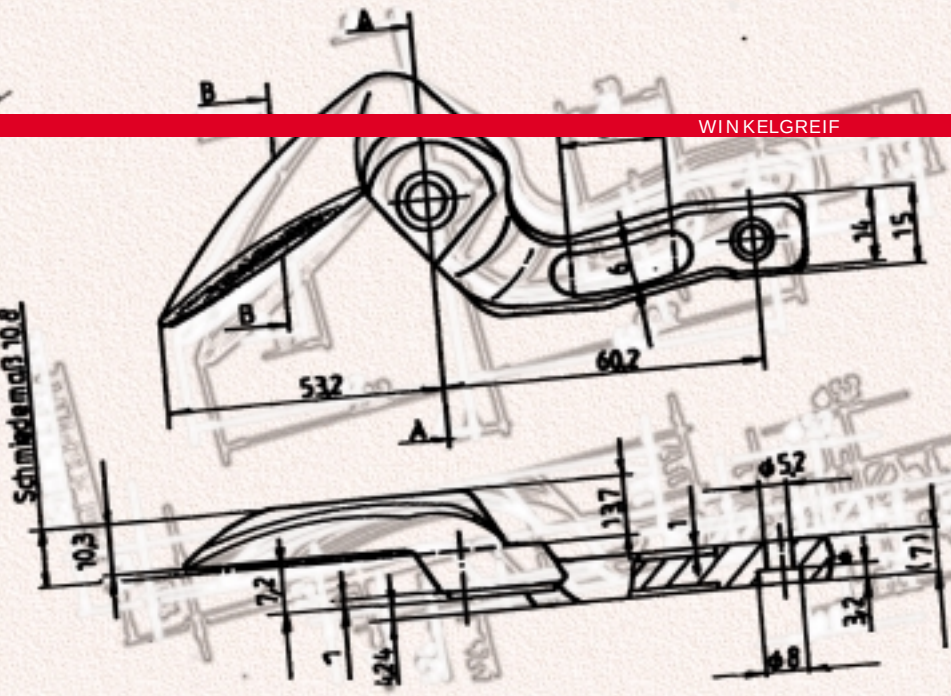
sturdy galvanized-wire rack for counter or shelf exposure or for tool-board mounting;
very perspicuous
holds dealer's choice of clamps, pliers, shears, etc.

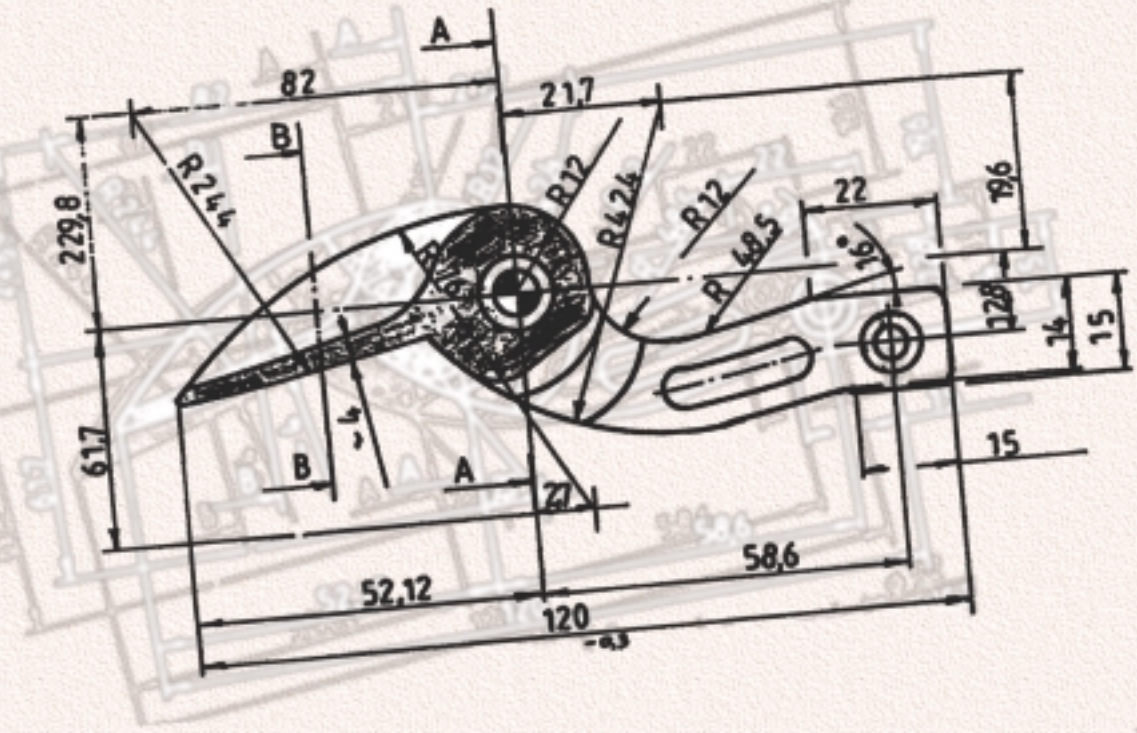
Art. no.	Width mm	Depth mm	Height mm
999-200	500	300	80

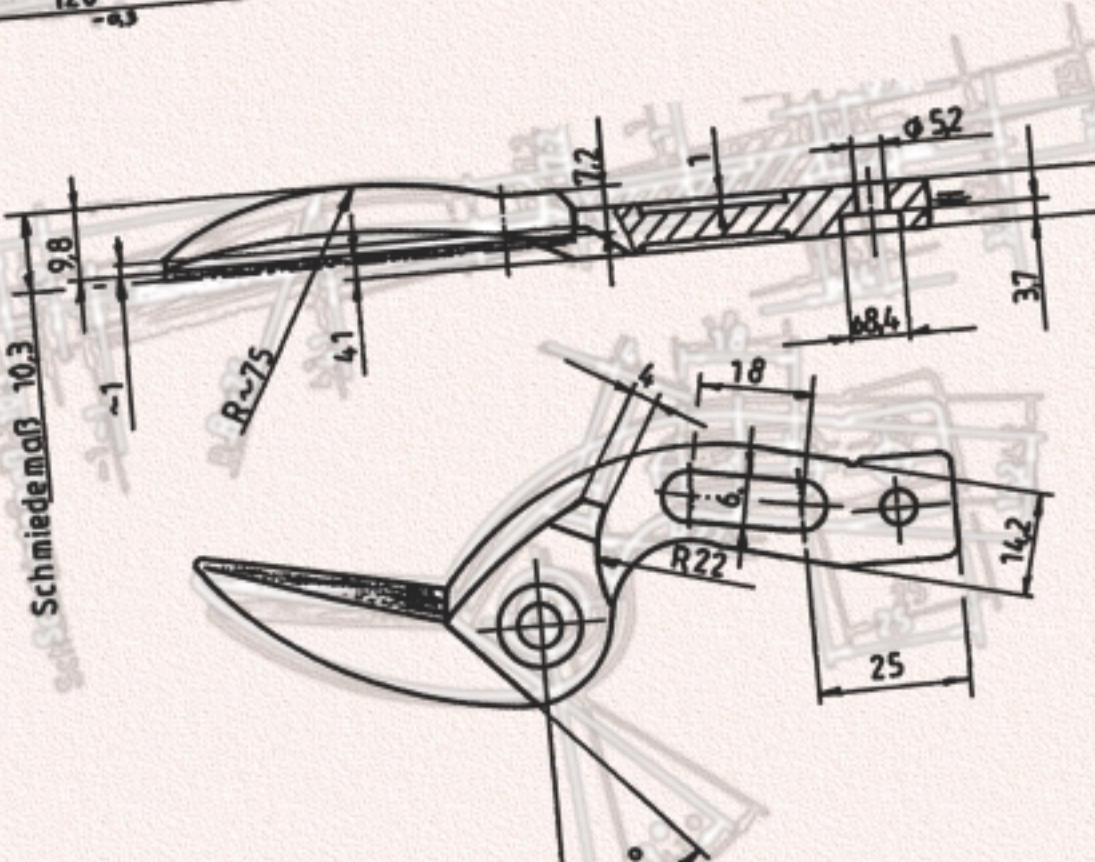
WINKELGREIF

Cutting Technology to the Highest of Standards
Quality since 1853





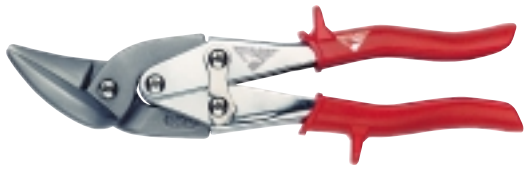




WINKELGREIF®

*Registered Trade Mark
(Solingen, July 19, 1947)

Compound Leverage Tin Snips



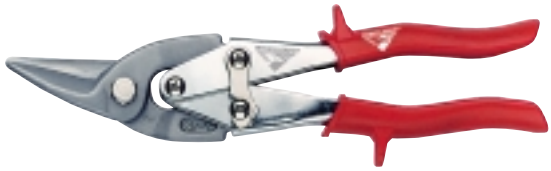


FIGURE-CUTTING SNIPS

for curvatures and short, straight cuts

Heavy-duty model:

Head made of drop-forged STAINLESS STEEL.
Cutting edges induction hardened (58-62 HRC) and finely serrated.
Handles made of sturdy stamped sheet steel, ergonomically designed, with red non-slip, kind-to-skin PVC coating and slip guard, plus built-in spring (self-opening).

Cutting capacity: sheet thicknesses up to 1.8 mm,
V2A sheets up to 1.2 mm,
available in **right-hand** and **left-hand** cutting versions

Light-duty model:

Head made of drop-forged STAINLESS STEEL.
Cutting edges induction hardened (54-58 HRC) and finely serrated.
Handles made of sturdy stamped sheet steel, ergonomically designed, with red non-slip kind-to-skin PVC coating and slip guard, plus built-in spring (self-opening).

Cutting capacity: sheet thicknesses up to 1.2 mm,
V2A sheets up to 1.0 mm
curved head: available in right-hand or left-hand cutting versions
straight head: available in left-hand cutting version only

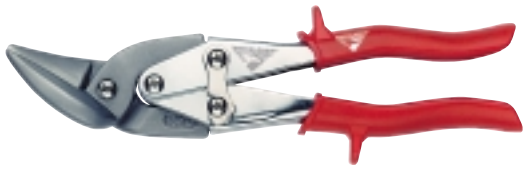
IDEAL-PATTERN SNIPS

for figures and straight cuts

Heavy-duty model:

Head made of drop-forged STAINLESS STEEL.
Cutting edges induction hardened (58-62 HRC) and finely serrated.
Handles made of sturdy stamped sheet steel, ergonomically designed, with red non-slip kind-to-skin PVC coating and slip guard, plus built-in spring (self-opening).

Cutting capacity: sheet thicknesses up to 1.8 mm, V2A sheets up to 1.2 mm, available in **right-hand** and **left-hand** cutting versions



Light-duty model:

Head made of drop-forged STAINLESS STEEL.
Cutting edges induction hardened (54-58 HRC) and finely serrated.
Handles made of sturdy stamped sheet steel, ergonomically designed, with red non-slip kind-to-skin PVC coating and slip guard, plus built-in spring (self-opening).

Cutting capacity: sheet thicknesses up to 1.2 mm, V2A sheets up to 1.0 mm, available with **right-hand** or **left-hand** cutters

WINKELGREIF®

*Registered Trade Mark
(Solingen, July 19, 1947)

Art. no.	Designation	Length mm	Length "	Type of cutters	g	
971-240	light-duty figure snips	240	9 1/2	right-hand	380	6
971-241	light-duty figure snips	240	9 1/2	left-hand	380	6
971-242	light-duty figure snips	240	9 1/2	straight, left-hand	380	6
972-260	heavy-duty figure snips	260	10 1/2	right-hand	500	5
972-261	heavy-duty figure snips	260	10 1/2	left-hand	500	5
973-240	light-duty ideal snips	240	9 1/2	right-hand	380	6
973-241	light-duty ideal snips	240	9 1/2	left-hand	380	6
974-260	heavy-duty ideal snips	260	10 1/2	right-hand	540	5
974-261	heavy-duty ideal snips	260	10 1/2	left-hand	540	5

STANDARD TIN SNIPS

*Registered Trade Mark
(Solingen, July 19, 1947)

Embodiments:

STAINLESS STEEL

Drop-forged, with cutting edges induction hardened to 58-62 HRC, ground and sand-blasted.
Handles with red non-slip kind-to-skin PVC coating and anti-squeeze guard.

Available with pivoted spring (optional).

HIGH-GRADE STEEL

Drop-forged, with cutting edges induction hardened to 54-58 HRC, ground and sand-blasted.
Handles with blue non-slip kind-to-skin PVC coating and anti-squeeze guard.

Available with pivoted spring (optional).

Types and uses:

BERLIN-PATTERN SNIPS

for long, straight cuts

HOLE-CUTTING SNIPS

for short, straight cuts and figures

IDEAL-PATTERN SNIPS

for straight cuts and figures

PELICAN-PATTERN SNIPS

for long, straight cuts,
especially good for cutting metal sheets

UNIVERSAL SNIPS

for long, straight cuts and figures

AMERICAN-PATTERN SNIPS

for long, straight cuts

STANDARD SNIPS

Art. no.	Designation	Length mm	Length "	Embodiment	Cutting hand		
976-250	Berlin-pattern	250	10	stainless steel	right	550	5
976-275	Berlin-pattern	275	11	stainless steel	right	650	5
976-300	Berlin-pattern	300	12	stainless steel	right	700	5
977-300	Pelican snips	300	12	stainless steel	right	950	5
978-250	Hole-cutting snips	250	10	stainless steel	right	450	5
978-251	Hole-cutting snips	250	10	stainless steel	left	450	5
978-275	Hole-cutting snips	275	11	stainless steel	right	470	5
978-276	Hole-cutting snips	275	11	stainless steel	left	470	5
978-300	Hole-cutting snips	300	12	stainless steel	right	700	5
978-301	Hole-cutting snips	300	12	stainless steel	left	700	5
979-260	Ideal-pattern	260	10 1/2	stainless steel	right	450	5
979-261	Ideal-pattern	260	10 1/2	stainless steel	left	450	5
979-280	Ideal-pattern	280	11	stainless steel	right	560	5
979-281	Ideal-pattern	280	11	stainless steel	left	560	5
980-249	Universal snips	250	10	stainless steel	right	450	5
980-250	Berlin-pattern	250	10	high-grade steel	right	550	5
980-275	Berlin-pattern	275	11	high-grade steel	right	650	5
980-300	Berlin-pattern	300	12	high-grade steel	right	750	5
981-300	Pelican snips	300	12	high-grade steel	right	950	5
982-250	Hole-cutting snips	250	10	high-grade steel	right	450	5
982-251	Hole-cutting snips	250	10	high-grade steel	left	450	5
982-275	Hole-cutting snips	275	11	high-grade steel	right	470	5
982-276	Hole-cutting snips	275	11	high-grade steel	left	470	5
982-300	Hole-cutting snips	300	12	high-grade steel	right	700	5
982-301	Hole-cutting snips	300	12	high-grade steel	left	700	5
983-260	Ideal-pattern	260	10 1/2	high-grade steel	right	450	5
983-261	Ideal-pattern	260	10 1/2	high-grade steel	left	450	5
983-280	Ideal-pattern	280	11	high-grade steel	right	560	5
983-281	Ideal-pattern	280	11	high-grade steel	left	560	5
984-250	Universal snips	250	10	high-grade steel	right	450	5
985-200	American-pattern	200	8	high-grade steel		240	6
985-250	American-pattern	250	10	high-grade steel		440	6
985-300	American-pattern	300	12	high-grade steel		660	6

STANDARD SNIPS WITH HSS-TIPPED CUTTING EDGES

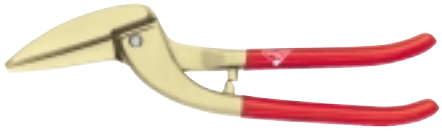
These standard snips have tungsten-carbide HSS cutting edges (HRc 65-67) for up to 15 times longer service lives and maximum cutting performance, especially for hard stainless steel (V2A) and similarly critical varieties of sheet steel.

Compound-leverage ideal-pattern snips

for straight cuts and figures
available in right-hand and left-hand cutting versions

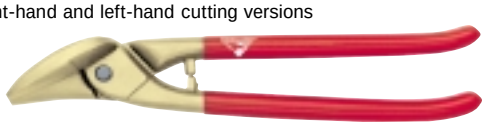
Pelican snips

for long, straight cuts and figures
available in right-hand cutting version only



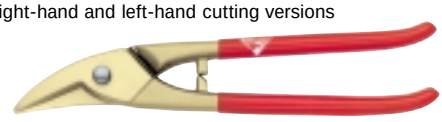
Ideal snips

for straight cuts and figures
available in right-hand and left-hand cutting versions



Punch snips

for short-straight cuts and figures
(wide radii) available in right-hand and left-hand cutting versions



Art. no.	Designation	Length mm	Length "	Embodiment	Cutting hand	g	
974-HSL	Ideal snips, compound-leverage	260	10 1/2	HSS	left	550	1
974-HSR	Ideal snips, compound-leverage	260	10 1/2	HSS	right	550	1
977-HSR	Pelican snips	300	12	HSS	right	960	1
978-HSL	Hole-cutting snips	275	11	HSS	left	480	1
978-HSR	Hole-cutting snips	275	11	HSS	right	480	1
979-HSL	Ideal snips	280	11	HSS	left	570	1
979-HSR	Ideal snips	280	11	HSS	right	570	1

JEWELER'S / LIGHT-SHEET SHEARS

Made of drop-forged special tool steel, hardened to 54-58 HRc, ground and sand-blasted.

Cutting edges hardened and polished bright
handles with high-quality protective coating,
open or closed shape and/or with grip ring

Handy universal snips for cutting thin sheets.

Available with straight or curved cutters

Art. no.	Designation	Length mm	"	Embodiment cutters	handle	g	
986-180	Jeweler's snips	175	7	straight	open	105	12
986-181	Jeweler's snips	175	7	curved	open	105	12
987-180	Jeweler's snips	175	7	straight	closed	105	12
987-181	Jeweler's snips	175	7	curved	closed	105	12
988-180	Jeweler's snips	175	7	straight	grip ring	105	12
988-181	Jeweler's snips	175	7	curved	grip ring	105	12

TIN NIBBLERS

Universal nibbler no. 975-200

For precision cutting of marked-out holes and figures.

Leaves no burrs and neither damages nor deforms the surrounding material.

Art. no.	Designation	Length mm	"	g	
975-200	Universal nibbler	265	10½	500	1
975-201	Spare blade				
975-202	Spare cutting guard				
975-203	Spare bolts				
975-204	Spare spring				

Embodiment:

sturdy steel body with compound leverage and built-in opening spring
nibbler head with replaceable blade
full closure of the nibbler for automatic chip severance
supplementary wire cutter for up to 3 mm-thick wires
galvanized handles with red non-slip kind-to-skin PVC grips

CUTTING CAPACITY:
sheet steel up to 1.2 mm thick (18 gauge)
aluminum, copper and plastic sheets up to 2 mm thick

Special nibbler no. 975-300

for quick and easy cutting of branch-connection holes in eaves troughs, air ducts, step profiles and sundry problematic geometries, e.g., concave sheets, corrugated sheet steel/plastic, pipes and tubes

Especially helpful for installing loudspeakers, rear wipers and the like in automobiles

Art. no.	Designation	Length mm	"	g	
975-300	Special nibbler	265	10½	470	1
975-203	Spare bolts				
975-301	Spare blade				
975-302	Spare jaws				

CABLE CUTTERS

Light-duty model:

head made of stainless steel
self-opening, with tough plastic grips

For cutting cables with thicknesses up to 10 mm

Art. no.	Designation	Length mm	"	g	
991-160	Light-duty cable cutter	160	6 1/2	110	12

Heavy-duty model:

head made of drop-forged and hardened high-grade steel,
with induction-(re)hardened cutting edges
handles with red non-slip kind-to-skin PVC coating

For cutting copper cables up to **50 mm** thick (single-core) or **95 mm** thick (fine-strand)
[HO 7 V-K] as well as multicore cables (up to **35 mm**, e.g., **4 x 6 mm**), plastic-sheathed cables with diameters up to 20 mm.

Clean, smooth cut thanks to extremely acute cutting angle - no pinch effect

Art. no.	Designation	Length mm	"	g	
991-200	Heavy-duty cable cutter	200	8	350	1

Heavy-duty VDE-insulated model

head made of drop-forged and hardened high-grade steel,
with induction-(re)hardened cutting edges
handles with insulated grips as per VDE IEC DIN 78 (Co) 11/0680/T201/07.83/IEC 900

For cutting copper and plastic-sheathed cables carrying up to 1000 Volt.

Art. no.	Designation	Length mm	"	g	
991-210	Cable cutter, VDE	200	8	350	1

MULTI-PURPOSE CUTTERS

Embodiment:

head made of stainless steel, with sharp-serrated cutting edges, self-opening, with tough plastic grips

Multi-purpose cutters for industrial and artisanal uses,
extra-sturdy type,
cuts thin sheet, wire, plastic, rubber, leather, cardboard, paper, carpets, flowers, branches, etc.
practical one-hand metal safety catch

Multi-purpose cutter, „DIY" model,
for home and garden, with practical one-hand plastic safety catch

Art. no.	Designation	Length mm	"	g	
993-140	Multi-purpose	140	5 1/2	50	12
993-190	Multi-purpose	190	7 1/2	100	12
993-191	Multi-purpose, DIY	190	7 1/2	100	24

INDUSTRIAL / PROFESSIONAL SHEARS

Embodiment:

drop-forged and hardened special tool steel, with polished cutting edges, black-painted handles; one long and one round grip ring

For cutting thick paper, cardboard, thin rubber, leather and textiles.

Art. no.	Embodiment	Length mm	"	g	
995-200	offset	200	8	200	6
995-250	offset	250	10	370	6

WIRE / TELEPHONE / ELECTRICIAN'S SCISSORS

Embodiment:

short-sturdy design
with serrated bottom blade, incl. wire cutter.
Nickel-plated blades, PVC-coated handles.

Telephone/cable scissors

pointed

Wire-cutting/electrician's scissors

For cutting thin wires, insulating tubes, rubber, leather, etc.

Art. no.	Designation	Length mm	"	Embo-diment	g	
990-140	Telephone/cable	140	5 1/2	serrated	95	12
991-125	Wire/electrician	125	5	serrated	70	12

MULTI-PURPOSE SCISSORS

Embodiment:

stainless steel blades
tough plastic grips with soft-plastic liners
adjustable hinge screw

Very versatile for cutting paper, cloth, etc.

Art. no.	Embodiment	Length mm	"	g	
996-180	straight	180	7	45	24
996-210	offset	210	8 1/4	80	24

PAPER / PAPER HANGER'S SCISSORS

Embodiment:

drop-forged and hardened
nickel-plated
two round grip rings

For long, straight cuts, especially for paper and wallpaper

Art. no.	Embodiment	Length mm	"	g	
994-200	straight	200	8	110	12
994-250	straight	250	10	150	12

TURNUS WINKELGREIF

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