



*Tools and
more*



HGV TOOLS

K11

**KSTOOLS®**

Tools and
more



HGV

page 634 - 665

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

i

HGV TOOLS **Overview**

Engine

Tools for professional engine repairs and service

- Injector sockets / thrust bolt sockets
- Special impact sockets / oil service wrenches



Chassis

Tools for professional chassis repairs

- Wheel bearing puller / ball joint separators mechanical - hydraulic
- Bearing assembly and disassembly tools
- Tension hydraulic pressure unit

Braking

Tools for professional brake repair and service

- Brake clip plier / brake linkage puller
- Resetting tool





Axles

Tools for professional axle repair and service

- Axle coupling wrench / drive shaft impact socket
- Grooved nut key wrenches / vario coupling nut wrenches

Wheels + tyres

Tools for the professional wheels tyre service

- Torque multiplier / impact sockets
- Tyre lifter

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

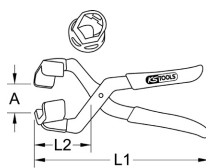
17

i

WHEELS & TYRES

HGV wheel nut cap pliers

- PVC dipped handle
- For removing of wheel nut caps
- No slipping through specially coated jaws
- Ideally suited for commercial vehicles
- Special tool steel



Item	A mm	L1 mm	L2 mm	kg
150.1995	28,0-60,0	250.0	72.0	305

HGV wheel nut wrench

- Two sided serviceable
- Large head depth for projecting bolts
- Alternative insert for tommy bar
- Ideally suited for commercial vehicles
- Matt finish
- Special steel



Item	mm	mm	L mm	kg
518.0831	24x27	15/16"x1.1/16"	400.0	1.15
518.0832	27x32	1.1/16"x1.1/4"	400.0	1.15
518.0833	32x38	1.1/4"x1.1/2"	400.0	1.15
518.0834	30x32		400.0	1.15
518.0835	32x33		400.0	1.15

Tommy bar for HGV wheel nut wrench

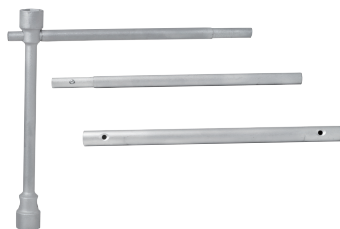
- Matt finish
- Special steel



Item	Ø mm	L mm	kg
518.0836	18,0	500.0	1.00
518.0837	18,0	600.0	1.19

Extended bar HGV wheel nut wrench set

- Two sided serviceable
- Large head depth for projecting bolts
- 1.200 mm extended drive bar
- Loading capacity at 1.200 N·m
- Ideally suited for commercial vehicles
- Matt finish
- Special steel



Item	kg
518.0838 4 pcs 24x27 mm, 15/16"x1.1/16"	3.90
518.0839 4 pcs 30x32 mm	3.90
518.0840 4 pcs 32x33 mm	3.90

HGV wheel nut wrench

- 6 point
- DIN 3319 / ISO 1174
- Square drive adaptor to DIN 3120 / ISO 1174 with ball lock
- Polished heads
- Matt finish
- Chrome vanadium



Item	mm	kg
518.1155	24x27x34x3/4"	3.50

HGV wheel nut wrench

- 6 point
- DIN 3119 / ISO 6788
- Square drive adaptor to DIN 3120 / 1174 with ball lock
- Forged, robust execution
- Heads, arms and centre hardened
- Loading capacity on tested at 2000 N·ms
- Polished heads
- Matt finish
- Special steel



Item	mm	L mm	kg
518.1156	24x27x30x32	750.0	5.60
518.1157	24x27x32x3/4"	750.0	5.60
518.1158	27x30x32x33	750.0	5.60
518.1159	27x30x32x3/4"	750.0	5.60

HGV wheel nut wrench, dismantable

- 6 point
- DIN 3319 / ISO 6788
- Square drive adaptor to DIN 3120 / ISO 1174 with ball lock
- Substantial centre
- Safety screw
- Matt finish
- Special steel
- Supplied in a cloth case




Item	mm	L mm	kg
518.1161	24x27x30x32	750.0	6.00
518.1162	24x27x32x3/4"	750.0	5.90

HGV tyre mounting lever

- Enables fast dismantling and fitting
- Phosphate finish
- Chrome vanadium




Item	L mm	
911.8147	535.0	600

HGV tyre mounting lever

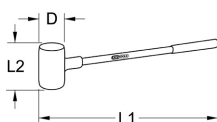
- Heavy and robust execution
- Enables fast dismantling and fitting
- Matt finish
- Chrome vanadium





Item	L mm	
911.8180	650.0	1.10

Dead blow hammer, extra large

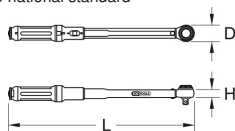
- Fiberglass handle
- Special absorbing effect through steel shot in the hammer head
- Substantially higher impact effect than standard conventional hammers
- Polyurethane glassfiber composite
- For safer working with less recoil





Item		D mm	L1 mm	L2 mm	handle, spare	
140.5259	4500	80.0	890.0	180.0	-	4.76
140.5260	5000	105.0	900.0	200.0	-	5.26

ERGOTORQUE® precision torque wrench with rotary mushroom ratchet head

- Actuation accuracy: $\pm 3\%$ tolerance of the set scale value
- Precise reading accuracy for a minimum 5.000 tightening cycles
- For controlled fastening in clockwise and counter clockwise directions
- Torque setting by pulling out and pushing in the slide in knob at the end of the handle
- The direction of rotation (clockwise and counter clockwise) can be changed by simply rotating the square drive piece
- Double scale in N·m and lbf·ft divisions for precise adjustment
- Includes micrometer scale in N·m divisions for precise and fine adjustment
- Large vision panel, precise adjustment using a magnifying glass
- An audible and palpable signal when the desired torque value is achieved
- Exact gearing 30 teeth ratchet mechanism
- Torque setting is quick and easy using the locking knob in the handle end
- Secure locking function within the handle
- Two component handle with a soft zone, is ergonomic in design and comfortable in the hand
- Square drive adaptor to DIN 3120 - ISO 1174 with ball lock
- Individually marked with serial number unique product identification
- Includes test certificate in accordance with DIN EN ISO 6789 national standard

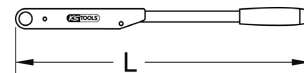


3/4" 1"



Item		N·m	Division N·m	lbf·ft	L mm	D mm	H mm	
516.1490	3/4"	100 - 550	1.00	75 - 405	960.0	69.0	33.0	3.80
516.1493	3/4"	140 - 750	10.00	150 - 550	1250.0	69.0	33.0	4.80
516.1495	1"	300 - 1000	20.00	220 - 730	1500.0	90.0	36.0	5.80

Torque wrench with close gap release

- Actuation accuracy: $\pm 4\%$ tolerance of the set scale value
- Precise reading accuracy for a minimum 5.000 tightening cycles
- For controlled fastening in clockwise and counter clockwise directions
- The direction of rotation (clockwise and counter clockwise) can be changed by simply rotating the square drive piece
- Four fold scale in N·m, Kg·fm, lbf·in und lbf·ft divisions for precise adjustment
- An audible and palpable signal when the desired torque value is achieved
- Torque setting is easy by pulling out, adjusting and pushing in the winder in the handle
- Automatic reset in the initial position
- Ergonomic handle designed for comfortable use
- Square drive adaptor to DIN 3120 - ISO 1174 with ball lock
- Individually marked with serial number unique product identification
- Includes test certificate in accordance with DIN EN ISO 6789 national standard



3/4" 1"


Item		N·m	lbf·ft	Division N·m	Division lbf·ft	L mm	
516.3545	3/4"	140 - 800	120 - 580	20.00	20.0	935.0	6.50
516.3550	1"	200 - 1000	150 - 750	25.00	25.0	1030.0	9.70

Universal torque convertor set


- Robust tightening and loosening
- Designed for use with the crank handle supplied
- Integrated support device
- Square drive adaptor to DIN 3120 / ISO 1174
- 1:64 Torque ratio
- 4.000 N·m maximum output torque
- Includes crank handle and extension
- Indispensable as essential equipment on service vehicles
- Ideal for trucks, construction machines and agricultural machines
- Not suited for use with impact wrenches
- In durable plastic storage case



1"

Item	
516.1150	5 pcs Universal torque convertor set
	11.00

consists of:

Item	
516.1151	Torque multiplier 1:64, 3 pcs
515.2130	Impact socket 30 mm
515.2132	Impact socket 32 mm

Universal torque convertor set

- Robust tightening and loosening
- Designed for use with the crank handle supplied
- Integrated support device
- Square drive adaptor to DIN 3120 / ISO 1174
- 1:64 Torque ratio
- 4.000 N·m maximum output torque
- Includes crank handle and extension
- Indispensable as essential equipment on service vehicles
- Ideal for trucks, construction machines and agricultural machines
- Not suited for use with impact wrenches
- In durable plastic storage case



1"

Item			kg
516.1155	5 pcs	Universal torque convertor set	11.50

consists of:

Item		kg
516.1151	Torque multiplier 1:64, 3 pcs	8.54
515.2130	Impact socket 30 mm	0.62
515.2133	Impact socket 33 mm	0.65

Universal torque convertor set

- Robust tightening and loosening
- Designed for use with the crank handle supplied
- Integrated support device
- Square drive adaptor to DIN 3120 / ISO 1174
- 1:64 Torque ratio
- 4.000 N·m maximum output torque
- Includes crank handle and extension
- Indispensable as essential equipment on service vehicles
- Ideal for trucks, construction machines and agricultural machines
- Not suited for use with impact wrenches
- In durable plastic storage case



1"

Item			kg
516.1156	5 pcs	Universal torque convertor set	12.00

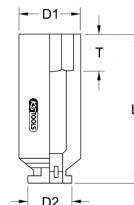
consists of:

Item		kg
516.1151	Torque multiplier 1:64, 3 pcs	8.54
515.2133	Impact socket 33 mm	0.65
515.2138	Impact socket 38 mm	0.71



Hexagon impact socket, deep

- 6 point
- Internal square drive to DIN 3121 / ISO 1174
- Extra thick walled / long centre execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum



1"

Item	mm	L mm	D1 mm	D2 mm	T mm	g
515.2124	24,0	76,0	38,0	52,0	13,0	570
515.2127	27,0	76,0	42,0	52,0	14,0	580
515.2130	30,0	76,0	45,0	52,0	17,5	620
515.2132	32,0	76,0	48,0	52,0	17,5	640
515.2133	33,0	76,0	49,0	52,0	18,0	650
515.2134	34,0	76,0	50,0	52,0	18,0	670
515.2136	36,0	76,0	54,0	52,0	20,0	690
515.2138	38,0	76,0	56,0	52,0	23,0	710
515.2141	41,0	80,0	59,0	52,0	23,0	720

Universal torque convertor

- Accuracy: $\pm 5\%$ Tolerance
- For controlled fastening in clockwise and counter clockwise directions
- Device for angle regulated fastening with a torque wrench
- Single stage precision planetary gear for both directions
- Two support devices
- Square drive adaptor to DIN 3120 - ISO 1174 with ball lock
- Supplied in a metal storage case

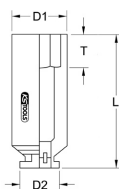


Item	□	○	■	Nm	Nm	D mm	L mm	H mm	kg
516.3700	1/2"	1 : 5	3/4"	260	1300	110.0	395.0	127.0	4.20
516.3705	3/4"	1 : 5	1"	540	2700	110.0	395.0	127.0	4.40



Hexagon impact socket, extra long

- 6 point
- Internal square drive to DIN 3121 / ISO 1174
- Extra long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum



3/4"

Item	mm	L mm	D1 mm	D2 mm	T mm	kg
515.1182	27,0	270,0	42,0	44,0	27,0	1.09
515.1183	30,0	270,0	46,0	44,0	30,0	1.14
515.1184	32,0	270,0	49,0	44,0	32,0	1.16
515.1191	27,0	400,0	42,0	44,0	27,0	1.25
515.1192	30,0	400,0	46,0	44,0	30,0	1.32
515.1193	32,0	400,0	49,0	44,0	32,0	1.36
515.1194	33,0	400,0	50,0	44,0	32,0	1.38

Hexagon torque impact socket, extra long

- Ideal for controlled loosening of wheel screws and nuts with impact wrenches
- Internal square drive to DIN 3121 / ISO 1174
- Extra long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum

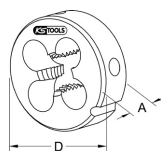


1"

Item	mm	max N·m	L mm	D mm	T mm	kg
515.1461	24,0	350	300,0	54,0	24,0	1.38
515.1462	27,0	350	300,0	54,0	27,0	1.40
515.1463	27,0	450	300,0	54,0	27,0	1.58
515.1464	30,0	500	300,0	54,0	30,0	1.56
515.1465	32,0	450	300,0	54,0	32,0	1.60
515.1466	32,0	550	300,0	54,0	32,0	1.60
515.1467	32,0	600	300,0	54,0	33,0	1.60
515.1468	33,0	550	300,0	54,0	33,0	1.64
515.1469	33,0	600	300,0	54,0	36,0	1.64

HSS die MF

- DIN EN 22568 form B
- Tolerance according to ISO - 6g
- Right hand cutting
- Specification, ground cutting edge
- Metric fine thread
- Surface without discolouration
- High performance steel



Ideally usable in high and low alloyed steel up to 800 N/mm² stability and NE metals.



Item	mm	A mm	D mm	Content	kg
332.1022	M18 x 1,5	14,0	45,0	1	100
332.1026	M20 x 1,5	14,0	45,0	1	100
332.1063	M22 x 1,5	16,0	55,0	1	110

Threading die adaptor set

- Universal holder for round dies
- Slim design
- Ideal for difficult to access areas
- Drive alternatively through 1/2" drive nut or holder
- Includes extension and locking knob
- In durable plastic storage case
- Special steel



Item	kg
331.0620 8 pcs Die adaptor set, 8 pcs	1.94

Consists of:

Item	kg
331.0621 Die adaptor, M3-M6, 24mm	60
331.0622 Die adaptor, M7-M8, 24mm	50
331.0623 Die adaptor, M9-M10, 24mm	90
331.0624 Die adaptor, M11-M14, 41mm	230
331.0625 Die adaptor, M18-M20, 41mm	360
331.0626 Die adaptor, M22-M24, 41mm	430
331.0627 Toggle for extension for die adapter	120
331.0628 1/2" Extension for die adapter	250

HGV tyre vulcanising repair set

- Self vulcanising material
- Simple handling
- Robust metal tools
- Ideally suited for the fast repair of damaged tyres
- Please check with the local country laws associated with tyre repairs for air tyres



Item	kg
150.1080 34 pcs HGV tyre vulcanising repair set	0.90

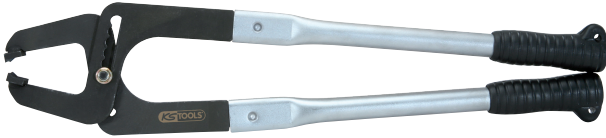
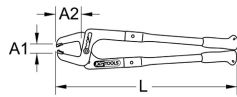
consists of:

Item	kg
150.1071 Lubricant, 70 g	70
150.1082 30 Replacement strings 178 mm	190
150.1083 Needle long	110
150.1074 Rasp	110
150.1075 Break-off utility knife 9 mm	10

AXLES

Grease cap pliers

- Hard rubber handle
- For the damage free drawing off of grease caps
- 2x6 moveable adjustable steps
- Wedge shaped jaw profile
- Head burnished
- Special tool steel



Item	A1 mm	A2 mm	L mm	kg
450.0210	0,0-100,0	85,0	500,0	1,20

Vario nut and cap key set

- For the dismantling and assembly of vario nuts
- Suitable for exact torque with a 3/4" square drive
- Certain stop through clamping screws and adapter guides on the basic device
- Hole separation maximum 145 mm
- Slim design
- Especially suitable for narrow hard to access areas
- Ideally suited for special nuts and caps
- Special steel

Application range: 6 point, 8 point, nuts and round nuts.



Item	kg
450.0180 13 pcs Vario nut and cap key set	4,20

Consists of:

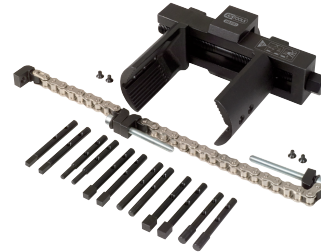
Item	kg
450.0181 Vario nut and cap key	2810
450.0182 2 Pieces round adapter 6 mm	41
450.0183 2 Pieces round adapter 8 mm	41
450.0184 2 Pieces round adapter 10 mm	41
450.0185 2 Pieces square adapter 6 mm	41
450.0186 2 Pieces square adapter 8 mm	41
450.0187 2 Pieces square adapter 10 mm	41



Vario nut and cap key set, heavy duty

- Extra heavy execution
- For the dismantling and assembly of vario nuts
- Suitable for exact torque with a 3/4" square drive
- Certain stop through clamping screws and adapter guides on the basic device
- Hole separation maximum 145 mm
- Includes clamping chain
- Slim design
- Especially suitable for narrow hard to access areas
- Ideally suited for special nuts and caps
- Special steel

Application range: 6 point, 8 point, nuts and round nuts.



Item	kg
450.0190 14 pcs Vario nut and cap key set, heavy duty	4,80

Consists of:

Item	kg
450.0191 Vario nut and cap key	3708
450.0192 2 Pieces round adapter 6 mm	470
450.0193 2 Pieces round adapter 8 mm	55
450.0194 2 Pieces round adapter 10 mm	64
450.0195 2 Pieces square adapter 6 mm	45
450.0196 2 Pieces square adapter 8 mm	52
450.0197 2 Pieces square adapter 10 mm	61
450.0198 Clamping chain	430

Hexagon impact socket, short

- 6 point
- According to DIN 3129 / ISO 2725-2
- Internal square drive to DIN 3121 / ISO 1174
- Short execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum

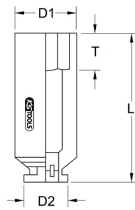


1"

Item	mm	mm	L mm	D1 mm	D2 mm	T mm	kg
515.1750	50,0		74,0	74,0	54,0	26,0	1,07
515.1755	55,0		85,0	81,0	54,0	28,0	1,44
515.1760	60,0		89,0	87,0	54,0	31,0	1,78
515.1765	65,0		93,0	93,0	54,0	32,0	1,80
515.1770	70,0		98,0	99,0	54,0	35,0	2,04
515.1775	75,0		100,0	106,0	86,0	40,0	3,48
515.1780	80,0		100,0	112,0	86,0	47,0	4,10
515.1785	85,0		102,0	119,0	86,0	47,0	4,80
515.1790	90,0		107,0	124,0	86,0	47,0	5,10
515.1795	95,0		107,0	131,0	86,0	50,0	5,25
515.1891		1"	58,0	42,0	51,0	14,0	0,52
515.1892		1.1/4"	60,0	51,0	51,0	16,0	0,61
515.1893		1.7/16"	62,0	56,0	52,0	20,0	0,64
515.1894		1.1/2"	62,0	58,0	52,0	22,0	0,67
515.1895		1.5/8"	62,0	62,0	52,0	22,0	0,92
515.1896		1.13/16"	64,0	68,0	58,0	23,0	1,00
515.1897		1.7/8"	66,0	70,0	58,0	24,0	1,08
515.1898		2.1/4"	75,0	84,0	62,0	30,0	1,52

Hexagon impact socket, deep

- 6 point
- Internal square drive to DIN 3121 / ISO 1174
- Long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum

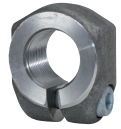


1"

Item	mm	L mm	D1 mm	D2 mm	T mm	kg
515.1850	50,0	100,0	74,0	54,0	40,0	1.57
515.1855	55,0	100,0	81,0	54,0	52,0	1.95
515.1860	60,0	120,0	87,0	54,0	52,0	2.82
515.1865	65,0	120,0	93,0	54,0	60,0	3.15
515.1870	70,0	125,0	99,0	54,0	60,0	3.34
515.1875	75,0	125,0	105,0	54,0	60,0	4.43
515.1880	80,0	125,0	112,0	54,0	75,0	4.76
515.1885	85,0	135,0	119,0	54,0	75,0	5.80
515.1890	90,0	135,0	124,0	54,0	75,0	6.10

Clamp nut socket

- For professional loosening and tightening
- Extremely versatile
- Rectangular form
- Usably with rectangular clamp nuts on the axle stub
- Suitable for exact torque with a 3/4" square drive
- Milled out profile
- For machinery usage
- Special steel



Application range: DAF, Mercedes Benz, Kässbohrer-Setra, MAN

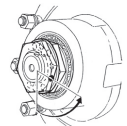


3/4"

Item	SW mm	mm	H mm	kg
450.0106	56,0	3/4	76,0	900
450.0107	60,0	3/4	76,0	870

Axle nut socket 85 mm

- Six sided drive SW 36
- Positive drive of the axle nut
- Any extensive slipping is avoided
- Milled out profile
- Robust execution
- Can be used with an impact wrench or torque wrench
- Special steel



Application range: SAF axle trailers



3/4"

Item	SW mm	mm	Ø mm	H mm	kg
450.0201	85,0	36,0	118,0	82,0	1.40

Axle nut socket 95 mm with guide band

- Six sided drive SW 36
- Positive drive of the axle nut
- Any extensive slipping is avoided
- Milled out profile
- Robust execution
- Can be used with an impact wrench or torque wrench
- Special steel

Application range: Mercedes Benz axle trailers



3/4"

Item	SW mm	mm	Ø mm	H mm	kg
450.0202	95,0	36,0	118,0	157,0	2.36

BPW axle nut socket

- For the dismantling and assembly of BPW axle nuts
- Extremely versatile
- Flat oval form
- Suitable for exact torque with a 3/4" square drive
- For machinery usage
- Special steel



3/4"

Item	SW mm	mm	Ø mm	H mm	kg
450.0204	65,0	3/4	82,0	66,0	1.07
450.0205	80,0	3/4	100,0	80,0	1.50

BPW wheel cap socket

- For the dismantling and assembly of grease caps on BPW axles
- Extremely versatile
- Flat oval form
- Suitable for exact torque on a hexagon head possible
- Ideally suited for very high tightening and loosening torques
- For machinery usage
- Special steel



3/4"

Item	SW mm	mm	Ø mm	H mm	kg
450.0207	95,0	41,0	110,0	90,0	2.50
450.0208	111,0	41,0	132,0	90,0	2.75



Axle nut socket 98 mm

- Six sided drive SW 36
- Positive drive of the axle nut
- Any extensive slipping is avoided
- Milled out profile
- Robust execution
- Can be used with an impact wrench or torque wrench
- Special steel

Application range: Iveco Euro Cargo, etc.



3/4"

Item	SW mm	 mm	Ø mm	H mm	 kg
450.0200	98,0	36,0	122,0	115,0	2.27



Axle nut socket 110 mm with guide band

- Six sided drive SW 36
- Positive drive of the axle nut
- Any extensive slipping is avoided
- Milled out profile
- Robust execution
- Can be used with an impact wrench or torque wrench
- Special steel

Application range: Iveco Eurotech Cursor HA, etc.

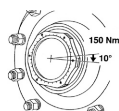


3/4"

Item	SW mm	 mm	Ø mm	H mm	 kg
450.0203	110,0	36,0	133,0	116,0	2.36

Axle nut socket 140 mm



- Positive drive of the axle nut
- Robust execution
- Can be used with an impact wrench or torque wrench
- Ideally suited for brake restoration working
- Forward tension with SW 32 mm is at 150 N·m
- Angle of rotation 20-30° with SW 46
- Special steel



Application range: SAF Euro axle, etc.



3/4"



Item	SW mm	 mm	H mm	 kg
450.0110	140,0	32/46	100,0	2.27

12 point impact socket

- 12 point
- Internal square drive to DIN 3121 / ISO 1174
- For machinery usage
- Phosphate finish
- Chrome molybdenum



1"

Item	 mm	L mm	T mm	 kg
450.0404	50,0	70,0	36,0	1.02
450.0405	55,0	75,0	40,0	1.23
450.0407	65,0	75,0	38,0	1.34

Groove nut socket with 4 studs


- Internal square drive to DIN 3121 / ISO 1174
- High accuracy of fit
- Extremely robust execution
- Suitable for high tightening and loosening torque
- Special steel



Application range: Mercedes Benz M Class, etc.



3/4"

Item	Inner Ø mm	Outer Ø mm	H mm	Stud Ø mm	Stud	Stud width mm	 g
450.0166	52,0	63,0	60,0	52,0	4	8,0	850


Groove nut socket with 6 studs

- Internal square drive to DIN 3121 / ISO 1174
- High accuracy of fit
- Extremely robust execution
- Suitable for high tightening and loosening torque
- Special steel

Application range: Mercedes Benz Sprinter HA, etc.



3/4"

Item	Inner Ø mm	Outer Ø mm	H mm	Stud Ø mm	Stud	Stud width mm	 g
450.0165	50,0	70,0	52,0	61,0	6	6,0	820

Groove nut socket with 6 studs

- Internal square drive to DIN 3121 / ISO 1174
- Rigid locating tube
- Optional with expander sleeve (bayonet locking system)
- High accuracy of fit
- Extremely robust execution
- Suitable for high tightening and loosening torque
- Special steel

Application range: Mercedes Benz Atego Rear axle, Vitaro 814, MAN, etc.



3/4"

Item	Inner Ø mm	Outer Ø mm	Locating tube Ø mm	H mm	Stud Ø mm	Stud	Stud width mm	kg
450.0160	80.0	95.0	49.0	185.0	87.0	6	10.0	2.60

Groove nut socket with 6 studs

- Internal square drive to DIN 3121 / ISO 1174
- Rigid locating tube
- High accuracy of fit
- Extremely robust execution
- Suitable for high tightening and loosening torque
- Special steel

Application range: Mercedes Benz Actros Rear axle, HL/HL 8 (Hypoid), etc.



3/4"

Item	Inner Ø mm	Outer Ø mm	H mm	Stud Ø mm	Stud	Stud width mm	kg
450.0167	105.0	125.0	182.0	115.0	6	10.0	2.60

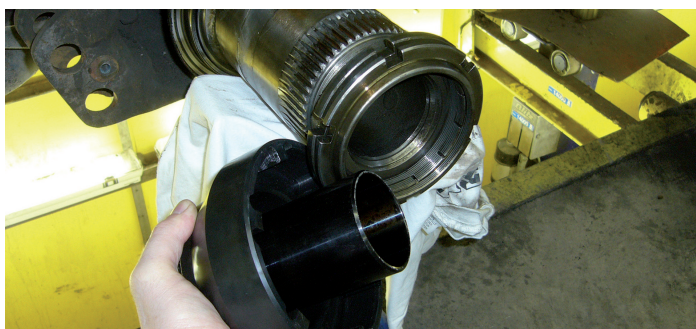
Sleeve locating tube

- Practical connector system with fixing screw
- Usably for different groove socket nuts (module systems)
- Enables stable work position
- Prevents slippage of the socket
- Extremely robust execution
- Change through loosening of the grub screw on the hexagon
- Special steel



3/4"

Item	Inner Ø mm	Outer Ø mm	L mm	kg
450.0150	46.0	52.0	140.0	520
450.0151	54.0	60.0	140.0	690
450.0152	60.0	67.0	140.0	820



Groove nut socket with 6 studs

- Internal square drive to DIN 3121 / ISO 1174
- Optional with sleeve locating tube
- High accuracy of fit
- Extremely robust execution
- Suitable for high tightening and loosening torque
- Special steel

Application range: Mercedes Benz und MAN 10 + 13 t Reduction axle, Hypoid- and Trailer axle NR 7/4, Omnibus 0305 G + 0405 G, etc.



3/4"

Item	Inner Ø mm	Outer Ø mm	H mm	Stud Ø mm	Stud	Stud width mm	kg
450.0168	95.0	115.0	165.0	101.0	6	6.0	820

Accessories:

Item		Inner Ø mm	Outer Ø mm	L mm	kg
450.0150	Sleeve locating tube	46.0	52.0	140.0	520
450.0152	Sleeve locating tube	60.0	67.0	140.0	820

Groove nut socket with 6 studs

- Internal square drive to DIN 3121 / ISO 1174
- Six sided drive SW 60
- High accuracy of fit
- Extremely robust execution
- Suitable for high tightening and loosening torque
- Special steel



Application range: MAN TGA Front axle, V9-82L-01(Disk brake/ABS), etc.



3/4"

Item	Inner Ø mm	Outer Ø mm	H mm	Stud Ø mm	Stud	Stud width mm	kg
450.0170	101.0	110.0	80.0	93.0	6	8.0	2.60

Groove nut socket with 6 studs

- Internal square drive to DIN 3121 / ISO 1174
- Six sided drive SW 60
- Optional with sleeve locating tube
- High accuracy of fit
- Extremely robust execution
- Suitable for high tightening and loosening torque
- Special steel

Application range: MAN TGA Front axle, V9-82L-01(Disk brake/ABS), etc.



3/4"

Item	Inner Ø mm	Outer Ø mm	H mm	Stud Ø mm	Stud	Stud width mm	kg
450.0176	133.0	145.0	110.0	117.0	6	12.0	3.82

Accessories:

Item		Inner Ø mm	Outer Ø mm	L mm	kg
450.0152	Sleeve locating tube	60.0	67.0	140.0	820

Single open ended spanner

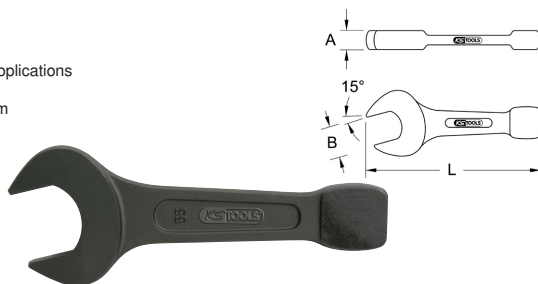
- DIN 894 / ISO 3380
- Jaw 15° offset
- For heavy duty applications
- Phosphate finish
- Chrome vanadium



Item	mm	A mm	B mm	L mm	kg
517.0522	22	8.0	48.0	193.0	170
517.0524	24	9.0	50.0	217.0	170
517.0527	27	9.8	56.0	239.0	230
517.0530	30	10.8	62.0	263.0	290
517.0532	32	11.8	66.0	275.0	350
517.0536	36	12.8	74.0	305.0	410
517.0538	38	12.8	74.0	305.0	410
517.0540	40	13.7	87.0	350.0	620
517.0541	41	13.8	87.0	344.0	620
517.0542	42	13.5	87.0	350.0	700
517.0546	46	19.8	94.0	380.0	850
517.0548	48	16.5	99.0	395.0	940
517.0550	50	15.8	102.0	413.0	1020
517.0555	55	16.8	112.0	459.0	1280
517.0560	60	17.7	122.0	494.0	1630
517.0565	65	18.7	132.0	528.0	1710
517.0570	70	19.7	142.0	572.0	2500
517.0575	75	20.7	152.0	610.0	3500
517.0580	80	21.7	162.0	645.0	3700
517.0585	85	23.0	173.0	690.0	4780
517.0590	90	23.0	173.0	690.0	5450
517.0595	95	25.0	195.0	847.0	5590
517.0596	100	25.0	195.0	847.0	5800

Slogging open end spanner

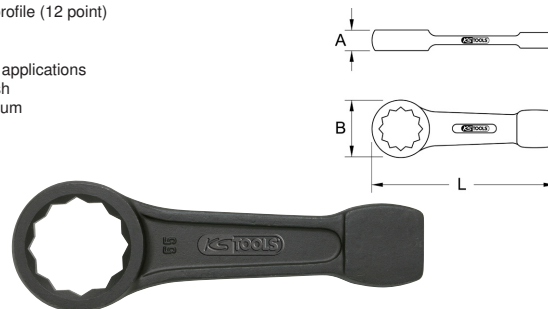
- DIN 133
- Jaw 15° offset
- Impact area
- For heavy duty applications
- Phosphate finish
- Chrome vanadium



Item	mm	A mm	B mm	L mm	kg
517.0124	24	17.4	56.3	160.0	0.50
517.0127	27	16.5	57.5	180.0	0.53
517.0130	30	17.0	63.5	190.0	0.55
517.0132	32	17.5	67.5	195.0	0.65
517.0136	36	18.5	77.5	210.0	0.85
517.0141	41	19.5	89.0	230.0	1.04
517.0146	46	20.0	99.0	250.0	1.39
517.0150	50	21.5	108.0	275.0	1.57
517.0155	55	24.0	118.5	305.0	2.25
517.0160	60	24.5	129.5	315.0	2.54
517.0165	65	28.0	140.5	345.0	3.64
517.0170	70	30.0	151.0	370.0	4.10
517.0175	75	31.5	163.0	385.0	5.17
517.0180	80	34.5	174.0	400.0	5.82
517.0185	85	34.5	174.0	410.0	6.98
517.0190	90	39.0	195.0	445.0	8.32
517.0195	95	39.0	195.0	455.0	10.40
517.0196	100	47.0	227.0	480.0	11.80

Slogging ring spanner

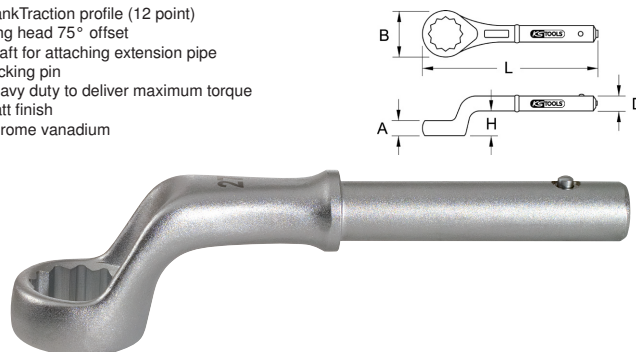
- FlankTraction profile (12 point)
- DIN 7444
- Impact area
- For heavy duty applications
- Phosphate finish
- Chrome vanadium



Item	mm	A mm	B mm	L mm	kg
517.0924	24	15.0	42.5	160.0	0.36
517.0927	27	15.5	47.0	180.0	0.38
517.0930	30	16.5	52.5	190.0	0.50
517.0932	32	16.5	54.0	195.0	0.53
517.0936	36	19.5	60.0	205.0	0.75
517.0941	41	20.5	66.0	225.0	0.81
517.0946	46	22.5	75.0	240.0	0.98
517.0950	50	23.5	80.0	250.0	0.98
517.0955	55	25.0	87.5	270.0	1.75
517.0960	60	26.0	93.5	270.0	1.96
517.0965	65	29.0	101.0	290.0	2.18
517.0970	70	32.5	109.5	320.0	2.40
517.0975	75	34.0	114.5	325.0	2.76
517.0980	80	35.0	123.0	345.0	3.75
517.0985	85	37.0	129.0	360.0	4.86
517.0990	90	41.5	152.0	400.0	5.88
517.0995	95	41.5	152.0	400.0	6.50
517.0996	100	41.5	152.0	400.0	7.83

Offset single ring spanner

- FlankTraction profile (12 point)
- Ring head 75° offset
- Shaft for attaching extension pipe
- Locking pin
- Heavy duty to deliver maximum torque
- Matt finish
- Chrome vanadium



Item	mm	A mm	B mm	D mm	H mm	L mm	kg
517.9024	24	17.0	38.0	19.0	29.5	180.0	0.35
517.9027	27	17.0	42.0	19.0	31.5	190.0	0.40
517.9030	30	18.0	48.0	19.0	33.5	195.0	0.45
517.9032	32	18.0	49.0	22.0	34.0	200.0	0.55
517.9036	36	18.0	49.0	22.0	34.0	200.0	0.65
517.9041	41	20.0	54.0	22.0	35.5	205.0	0.75
517.9046	46	22.0	62.0	22.0	39.5	265.0	1.05
517.9050	50	23.0	69.0	25.0	40.0	280.0	1.15
517.9055	55	25.5	76.0	25.0	42.5	290.0	1.40
517.9060	60	28.0	81.0	25.0	45.5	300.0	2.10
517.9065	65	30.5	90.0	30.0	49.0	345.0	2.30
517.9070	70	33.0	98.0	30.0	53.0	355.0	2.60
517.9075	75	35.5	105.0	30.0	55.0	365.0	3.00
517.9080	80	38.0	110.0	30.0	57.5	375.0	3.45
517.9085	85	40.5	125.0	30.0	59.0	385.0	3.80
517.9090	90	40.5	125.0	30.0	59.0	410.0	4.88
517.9095	95	45.0	140.0	30.0	63.0	410.0	5.67
517.9100	100	45.0	140.0	30.0	63.0	412.0	6.66
517.9105	105	45.0	143.0	30.0	63.0	415.0	7.50

GEARplus® Reversing combination ratcheting spanner set

- FlankTraction profile (12 point)
- In accordance to DIN 3113 / ISO 3318
- Jaw 15° offset
- Ratchet head 15° offset
- Exact gearing with 72 teeth
- Reverse lever
- High quality finish
- Chrome vanadium



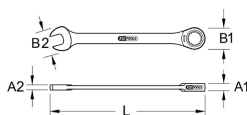
Item				kg
503.4601	4 pcs	24 - 27 - 30 - 32 mm		3.23

Consists of:

Item			kg
503.4624	GEARplus® Reversible combination ratcheting spanner, 24 mm	470	
503.4627	GEARplus® Reversible combination ratcheting spanner, 27 mm	660	
503.4628	GEARplus® Reversible combination ratcheting spanner, 30 mm	860	
503.4629	GEARplus® Reversible combination ratcheting spanner, 32 mm	1050	

GEARplus® Combination ratcheting spanner

- FlankTraction profile (12 point)
- In accordance to DIN 3113 / ISO 3318
- Jaw 15° offset
- Straight form
- Exact gearing with 72 teeth
- Chrome plated and mirror polished
- Chrome vanadium



Item	mm	mm	A1 mm	A2 mm	B1 mm	B2 mm	L mm	kg
503.42055	5,5		6.3	3.9	14.0	15.0	127.5	20
503.4206	6		6.3	3.9	14.0	15.0	128.0	25
503.4207	7		6.5	4.0	16.8	16.7	140.0	30
503.4208	8		6.5	4.0	16.8	16.7	140.0	30
503.4209	9		6.9	4.4	18.8	18.7	149.0	40
503.4210	10		7.3	4.8	20.8	20.8	158.0	50
503.4211	11		7.7	5.2	21.8	23.0	165.0	60
503.4212	12		8.2	5.5	22.8	24.6	171.0	70
503.4213	13		8.6	5.8	24.8	26.8	178.0	80
503.4214	14		9.0	6.2	27.8	29.0	190.0	110
503.4215	15		9.4	6.5	28.8	31.0	199.0	120
503.4216	16		9.9	6.8	30.8	33.0	208.0	150
503.4217	17		10.3	7.2	31.8	35.5	225.0	180
503.4218	18		10.7	7.7	32.8	37.5	236.0	210
503.4219	19		11.2	8.2	33.8	39.4	247.0	240
503.4221	21		13.0	9.0	40.0	45.8	289.0	340
503.4222	22		13.0	9.0	40.0	45.8	289.0	340
503.4224	24		14.5	10.0	46.0	51.8	322.0	470
503.4227	27		15.5	10.5	52.0	56.4	358.0	580
503.4228	30		17.0	11.4	58.0	62.7	401.0	860
503.4229	32		17.5	12.5	62.0	66.4	424.0	1060
503.4230	34		17.5	13.0	62.0	70.0	459.0	1170
503.4102		5/16"	6.5	4.0	16.8	16.7	140.0	30
503.4103		3/8"	7.3	4.8	20.8	20.8	158.0	40
503.4104		7/16"	7.7	5.2	21.8	23.0	165.0	50
503.4105		1/2"	8.6	5.8	24.8	26.8	178.0	70
503.4106		9/16"	9.0	6.2	27.8	29.0	190.0	110
503.4107		5/8"	9.9	6.8	30.8	33.0	208.0	130
503.4108		11/16"	10.3	7.2	31.8	35.5	225.0	170
503.4109		3/4"	11.2	8.2	33.8	39.4	247.0	220

GEARplus® Double ring ratcheting spanner set

- FlankTraction profile (12 point)
- In accordance to DIN 3113 / ISO 3318
- Jaw 15° offset
- Straight form
- Exact gearing with 72 teeth
- Chrome plated and mirror polished
- Chrome vanadium



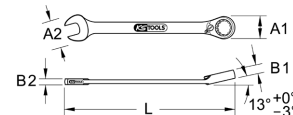
Item				kg
503.4270	4 pcs	24 - 27 - 30 - 32 mm		3.07

Consists of:

Item			kg
503.4224	GEARplus® Combination ratcheting spanner, straight form, 24 mm	470	
503.4227	GEARplus® Combination ratcheting spanner, straight form, 27 mm	580	
503.4228	GEARplus® combination ratcheting spanner, straight form, 30 mm	860	
503.4229	GEARplus® Combination ratcheting spanner, straight form, 32 mm	1060	

GEARplus® Reversing combination ratcheting spanner

- FlankTraction profile (12 point)
- In accordance to DIN 3113 / ISO 3318
- Jaw 15° offset
- Ratchet head 15° offset
- Exact gearing with 72 teeth
- Reverse lever
- High quality finish
- Chrome vanadium



Item	mm	mm	A1 mm	A2 mm	B1 mm	B2 mm	L mm	kg
503.4606	6		6.3	3.9	14.0	15.0	126.0	30
503.4607	7		6.5	4.6	16.6	16.7	145.0	30
503.4608	8		6.5	4.6	16.6	16.7	145.0	30
503.4609	9		6.9	4.9	18.4	18.8	150.0	40
503.4610	10		7.3	5.3	20.0	20.8	145.0	50
503.4611	11		7.7	5.6	21.8	23.0	165.0	60
503.4612	12		8.2	6.0	22.7	25.0	172.0	70
503.4613	13		8.6	6.4	24.7	27.1	165.0	80
503.4614	14		9.0	6.8	27.0	29.2	190.0	100
503.4615	15		9.4	7.0	28.3	31.3	200.0	120
503.4616	16		9.9	7.2	30.0	33.4	208.0	150
503.4617	17		10.3	7.7	31.8	35.5	225.0	160
503.4618	18		10.7	8.2	32.6	37.6	237.0	190
503.4619	19		11.2	8.8	33.8	39.7	248.0	220
503.4622	22		13.0	9.0	40.0	46.0	290.0	360
503.4624	24		14.5	10.0	46.0	52.2	323.0	470
503.4627	27		15.5	10.5	52.5	56.5	331.0	660
503.4628	30		17.0	11.4	58.5	62.7	389.0	860
503.4629	32		17.5	12.5	62.6	66.4	415.0	1050
503.4630	34		17.5	13.0	62.5	70.6	460.0	1200
503.4643	36		18.0	13.4	66.2	79.0	490.0	1300
503.4644	38		19.0	13.4	66.2	82.0	490.0	1400
503.4681		5/16"	6.5	4.0	16.6	16.7	145.0	30
503.4683		3/8"	7.3	4.8	20.0	20.8	159.0	60
503.4684		7/16"	7.7	5.2	21.8	23.0	165.0	70
503.4685		1/2"	8.6	5.8	24.7	27.1	178.0	80
503.4686		9/16"	9.0	6.5	27.0	29.2	190.0	100
503.4687		5/8"	9.9	6.8	30.0	33.4	208.0	140
503.4688		11/16"	10.3	7.2	31.8	35.5	225.0	170
503.4689		3/4"	11.2	8.2	33.8	39.7	248.0	230

Universal wheel hub extractor set and drive shaft ejector

- Ideal for Transporter and commercial vehicle
- Variable use for bolt circle diameter up to 300 mm
- Universal use for bolts up to max. Ø 22 mm
- Impact spindle includes impact wrench
- Optionally upgradeable with hydraulic spindle or slide hammer
- Special steel



Item				kg
450.0035	6 pcs	Universal wheel hub extractor set and drive shaft ejector		7.91

consists of:

Item				g
450.0037	Puller arm set, 3 pcs, 200mm			2727
450.0036	Disc traverse, Ø 150mm			1740
450.0038	Impact spindle, 340mm			838
700.1400-4	Impact spanner, 30mm, L=200mm			2600

Universal wheel hub extractor set

- For bolt circle diameter up to 250 mm
- Clamp foot hole for bolts 14 mm, 18 mm + 22 mm
- Special steel



Item				kg
670.0013	5 pcs	Universal wheel hub extractor set		3.60

Universal wheel hub extractor set

- For bolt circle diameter up to 250 mm
- Clamp foot hole for bolts 14 mm, 18 mm + 22 mm
- Special steel



Item				kg
670.0014	6 pcs	Universal wheel hub extractor set		4.10

Universal wheel hub extractor set

- For bolt circle diameter up to 250 mm
- Clamp foot hole for bolts 14 mm, 18 mm + 22 mm
- Special steel



Item				kg
670.0015	7 pcs	Universal wheel hub extractor set		4.60

Universal wheel hub extractor

- Variable use for bolt circle diameter up to 300 mm
- Universal use for bolts up to max. Ø 22 mm
- Impact spindle includes impact wrench
- Optionally upgradeable with hydraulic spindle or slide hammer
- Special steel



Item				kg
450.0040	12 pcs	Universal wheel hub extractor		15.00

Consists of:

Item				g
450.0041	Tapered thrust bolt M30			1680
450.0043	Traverse, 370 mm			8000
450.0044	Extension and nut			800
450.0045	Thread adaptor, M18 x 1,5			600
450.0046	Thread adaptor, M20 x 1,5			600
450.0055	Thread adaptor, M22 x 1,5			604
450.0048	Locating thrust piece size1, 90 mm/65 mm, H 30 mm			1140
450.0049	Locating thrust piece size2, 110 mm/85 mm, H 30 mm			1340



Universal wheel hub extractor for commercial vehicles

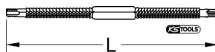
- Extracting the wheel hubs and/or housing over the grease cap thread
- Six sided drive enable unscrewing on the cap
- Robust execution
- Trapezoid thread spindle for high removal power drive SW 30
- Special steel



Item	Ø mm	mm	SW mm	kg
450.0000	AG M115 x 1,5	M30 x 260	30	3.74
450.0001	AG M125 x 2,0	M30 x 260	30	1.56
450.0002	IG M135 x 2,0	M30 x 260	30	2.19
450.0003	IG M136 x 2,5	M30 x 260	30	1.48
450.0004	IG M155 x 3,0	M30 x 260	30	0.71

Thread file, metric

- For the restoration of defective internal and external threads
- Suitable for right and left handed threads
- Two sided serviceable
- Special steel



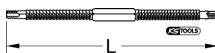
Suitable for thread pitch: 0.8 - 3.0 mm



Item	L mm	kg
150.1340	230.0	130

Thread file, imperial

- For the restoration of defective internal and external threads
- Suitable for right and left handed threads
- Two sided serviceable
- Special steel



Suitable for thread pitch: 24 - 10 pitch imperial



Item	L mm	kg
150.1345	230.0	130

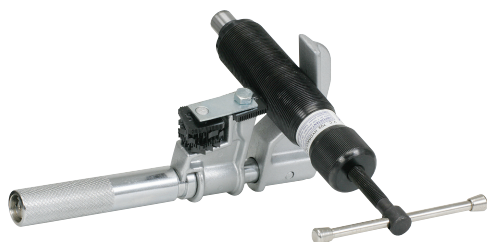
Thread chaser

- For recutting edges and cleaning of damaged outside threads
- No damage of the thread due to the soft holding guides
- Suitable for right and left handed threads
- Quick cutting jaw modification possible from the magazine
- Special steel

Replacement jaws metric: 1.0 - 1.25 - 1.5 - 1.75 - 2.0 - 2.5 - 3.0 - 3.5 mm

Replacement jaws imperial: 24 - 20 - 18 - 16 - 14 - 12 - 11.5 - 11 - 10 - 9 - 8 - 7.5 - 7 - 6 - 5 - 4 pitch/imperial

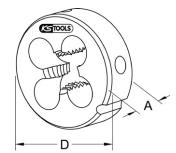
Application range: Truck spigot stubs, hydraulic cylinder screw joints, steering and push rods etc.



Item	Ø mm	Replacement jaws mm	Replacement jaws inch	kg
150.1430	35,0 - 130,0	150.1431	150.1432	1.40

HSS die MF

- DIN EN 22568 form B
- Tolerance according to ISO - 6g
- Right hand cutting
- Specification, ground cutting edge
- Metric fine thread
- Surface without discolouration
- High performance steel



Ideally usable in high and low alloyed steel up to 800 N/mm² stability and NE metals.



Item	mm	A mm	D mm	Content	kg
332.1022	M18 x 1,5	14.0	45.0	1	100
332.1026	M20 x 1,5	14.0	45.0	1	100
332.1063	M22 x 1,5	16.0	55.0	1	110

Threading die adaptor set

- Universal holder for round dies
- Slim design
- Ideal for difficult to access areas
- Drive alternatively through 1/2" drive nut or holder
- Includes extension and locking knob
- In durable plastic storage case
- Special steel



Item	kg
331.0620 8 pcs Threading die adaptor set	1.94

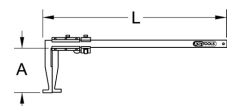
Consists of:

Item	kg
331.0621 Die adaptor, M3-M6, 24mm	60
331.0622 Die adaptor, M7-M8, 24mm	50
331.0623 Die adaptor, M9-M10, 24mm	90
331.0624 Die adaptor, M11-M14, 41mm	230
331.0625 Die adaptor, M18-M20, 41mm	360
331.0626 Die adaptor, M22-M24, 41mm	430
331.0628 1/2" Extension for die adaptor	250
331.0627 Toggle for extension for die adaptor	120

BRAKES

HGV brake drum caliper 0 - 500 mm

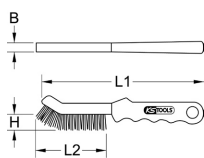
- In accordance with DIN 862
- Locking screw
- For external and internal measurements
- Scale division in black
- Fine adjustment
- Measuring bar in mm divisions
- Thread table
- Internal measure has direct reading
- Entirely hardened, finely engineered
- Stainless steel
- In durable wooden case



Item	Inner measuring range mm	Outer measuring range mm	A mm	L mm	Display accuracy mm	kg
300.0530	0 - 500	60 - 560	150.0	660.0	+/- 0,05	1.38

Steel wire brake saddle wire brush 2 rowed, straight

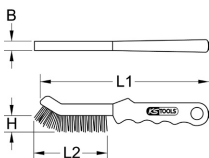
- 2 rowed
- Hanging hole
- Very narrow execution
- For narrow brake saddle shafts
- Robust stock
- Dual component handle
- For removing of stubborn brake dust
- For surface preparation
- Straight steel wire



Item	B mm	H mm	L1 mm	L2 mm	g
201.2320	12.0	22.0	225.0	90.0	90

Steel wire brake saddle wire brush 2 rowed, straight and tapered point

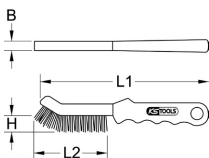
- 2 rowed
- Hanging hole
- Tapered point
- Very narrow execution
- For narrow brake saddle shafts
- Robust stock
- Dual component handle
- For removing of stubborn brake dust
- For surface preparation
- Straight steel wire



Item	B mm	H mm	L1 mm	L2 mm	g
201.2321	12.0	22.0	225.0	90.0	90

Steel wire brake saddle wire brush 2 rowed, straight

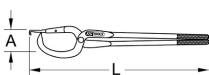
- 2 rowed
- Very narrow execution
- For narrow brake saddle shafts
- Robust stock
- Hanging hole
- Dual component handle
- For removing of stubborn brake dust
- For surface preparation
- Crimped steel wire



Item	B mm	H mm	L1 mm	L2 mm	g
201.2322	12.0	22.0	225.0	90.0	90

HGV brake spring pliers

- For attaching and dismantling the brake shoes retaining spring
- For glued and riveted brake shoes
- Special surround
- Interchangeable tip
- Knurled handle
- Chrome vanadium

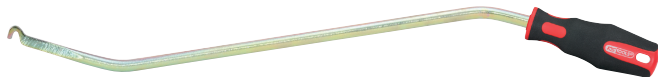


Item	A mm	L mm	Replacement tip	kg
450.0320	205.0	500.0	450.0321	1.25

HGV spring lever

- Ideally suited for brake shoe release springs
- dismantling and assembly of the back plate not necessary
- Enables works within the wheel housing
- Hanging hole
- Dual component handle
- Forged execution
- Special steel

Application range: Mercedes Benz, MAN, LKW and Omnibusse with Euro axle, Iveco Eurocar-go, Eurotech, etc.



Item	L mm	g
450.0310	450.0	580
450.0311	620.0	680

Brake pad rivet clip set

- For the correct dismantling and assembly of brake linings
- Suited to taking off and to rivet on the lining
- Special steel
- In durable plastic storage case

Application range: Transporter, light commercial, commercial, agricultural engineering, trailers, etc.



Item	kg
150.2200 6 pcs Brake pad rivet clip set	2.71

consists of:

Item	g
150.2201 Work frame with mandrel jig and interchangeable support plate	1460
150.2202 Flared arbor 8 mm	170
150.2203 Flared arbor 11 mm	170
150.2204 Burr arbor	180
150.2205 Support cylinder for work frame	10
151.2023 Hexagonal key socket wrench 3 mm	10

MAN brake caliper socket set

- Special socket
- For the dismantling and assembly of brake line fittings
- Extra large drive for extremely tight fitting couplings
- Extremely robust
- Especially suitable for narrow hard to access areas
- Chrome vanadium



Item	kg
450.0360 3 pcs MAN Brake caliper socket set	1.33



Consists of:

Item	g
450.0361 MAN Brake caliper socket E 20	176
450.0362 MAN Brake caliper socket E 24	216
503.4228 GEARplus® Combination ratcheting spanner, straight form, 30 mm	860

Breaker bar set

- Adaptor 14x18 mm
- Snap lock rectangular tool holder
- Dual component handle
- Chrome vanadium




Item		L mm	SW mm	
516.0363	14 x 18	635.0	30,0	1.50

Special clamping gripping pliers

- For the cutting of plastic pipes
- Enormous time and costs saving
- Suitable for narrow hard to access areas
- Versatile use

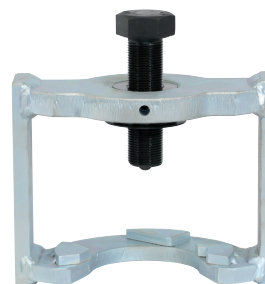
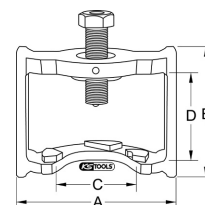
Application range: Mercedes Benz, MAN, DAF, Iveco, Volvo, Scania, Renault etc.




Item		Ø mm	
450.0350	1	8 / 9 / 10 / 11 / 12	775
450.0351	2	7 / 9 / 10 / 12 / 14	775
450.0352	3	15 / 16 / 18	636


Brake linkage adjuster extractor, BPW



- Substantial construction for drawing off firmly sitting BPW brake linkage adjusters
- Suitable for older and automatic linkage adjusters
- Special steel



Item		
450.0365	7 pcs Iveco brake piston service tool set	1.08

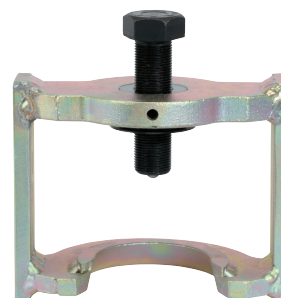
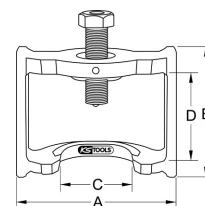
consists of:

Item		
150.2001	Brake piston adaptor tool, Basic unit	360
150.2003	Brake piston adaptor tool	180
150.2007	Brake piston adaptor tool for D 35 mm	60
503.4010	GEARplus® combination ratcheting spanner, SW 10 mm	70
503.8135	MICRO-Bits internal hexagon, 8 mm	10
150.2042	Brake piston adaptor tool for IVECO	50

Item	A mm	B mm	C mm	D mm		SW mm	
450.0305	160	127	65	78	M22x1,5 x 90	32	2.70

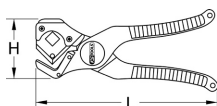
Brake linkage adjuster extractor, HALDEX


- Substantial construction for drawing off firmly sitting brake linkage adjuster
- Certain stop through ring shaped bearing area
- Special steel





Hose cutter Ø 6 - 25 mm

- Aluminium die cast body

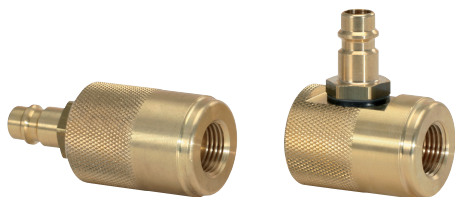


Item	Ø mm	H mm	L mm	
222.2060	6,0 - 25,0	50.0	185.0	222.2061 300

Item	A mm	B mm	C mm	D mm		SW mm	
450.0300	160	127	65	78	M22x1,5 x 95	32	3.10

Compressed air adaptor set

- With universal connector
- For filling the air brake plant truck compressed from the manufacturer Bosch and Wabco+Graul
- Set contains 0° and 90° executions for different place ratios
- Applicably for the tyre abundance connection for the pressure regulator
- Unnecessary air load and sound load diminishes



Item				kg
450.0315	2 pcs	Compressed air adaptor set		0.45

Special socket for 8 point screws

- Special 8 point internal profile
- To the dismantling and assembly of the control switch for the differential lock
- Ideally suited also for various electric switches on the transmissions
- Chrome plated and mirror polished
- Special steel

Application range: MAN, Mercedes Benz LKW Actros, SK Baureihe, etc.



1/2"

Item	Profile	SW mm	Ø mm	L mm	g
455.0100	8 point	27	34,0	57.0	200

CHASSIS

CHROMEplus® Double ring spanner set, extra long

- FlankTraction profile (12 point)
- Thin walled
- Chrome plated and mirror polished
- Chrome vanadium



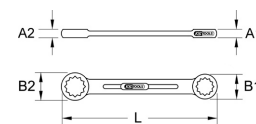
Item			kg
518.0800	6 pcs	10x11 - 12x14 - 13x15 - 16x18 - 17x19 - 22x24 mm	1.30

Consists of:

Item		g
518.0822	CHROMEplus® Double ring spanner, extra long, 10 x 11 mm	95
518.0823	CHROMEplus® Double ring spanner, extra long, 12 x 14 mm	157
518.0824	CHROMEplus® Double ring spanner, extra long, 13 x 15 mm	217
518.0825	CHROMEplus® Double ring spanner, extra long, 16 x 18 mm	284
518.0826	CHROMEplus® Double ring spanner, extra long, 17 x 19 mm	284
518.0828	CHROMEplus® Double ring spanner, extra long, 22 x 24 mm	482

CHROMEplus® Double ring spanner set, extra long

- FlankTraction profile (12 point)
- Thin walled ring
- Ideally suited for truck drive shaft couplings
- Chrome plated and mirror polished
- Chrome vanadium



Item	mm	A1 mm	A2 mm	B1 mm	B2 mm	L mm	kg
518.0827	20x21	13.5	15.2	27.5	29.7	415.0	376

Universal ball joint extractor

- For bolt circle diameter up to 300 mm
- Universal use for bolts up to max. Ø 22 mm
- Special steel
- In durable plastic storage case



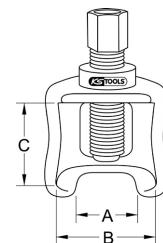
Item		kg
670.0060	3 pcs Universal ball joint extractor	2.90

Consists of:

Item		g
670.0061	Universal pivot pin ejector, 23mm	800
670.0062	Universal pivot pin ejector, 28mm	800
670.0063	Universal pivot pin ejector, 34mm	900

Universal ball joint extractor

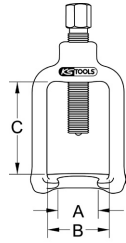
- For many automobiles and commercial vehicles
- Special steel



Item	A mm	B mm	C mm	max t mm	SW mm	kg
670.0071	24	45	45	4	M14x1,5 x 60	17 0.50

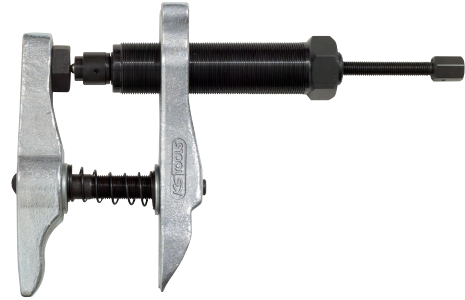
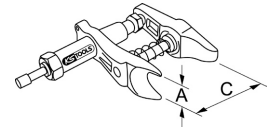
Universal ball joint extractor

- Robust model for loosening the track heads and push pole heads
- Optimal positioning through compact design and slim fork piece
- Special steel



Hydraulic universal ball joint separator

- For separating the ball plug in the extension of the ball joints
- Suitable for many vehicles + moderately heavy trucks
- For bolts Ø 27,0 - 36,0mm
- Special steel

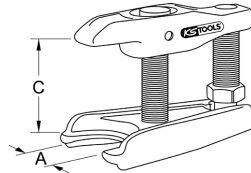


Item	A mm	B mm	C mm	SW mm	mm	kg
450.0075	30	63	75	24	M22 x 135	1.63
450.0076	46	76	100	24	M22 x 135	1.84

Item	A mm	C mm	max t	SW mm	mm	kg
670.0141	36	90	10	17	M14 x 1,5 x 50	4.70

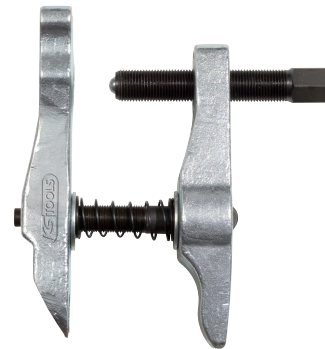
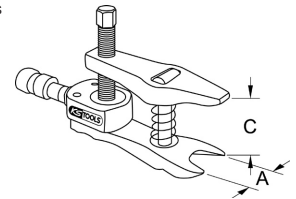
Universal ball joint extractor

- Robust model for loosening the track heads and push pole heads
- Optimal positioning through compact design and slim fork piece
- Adjustment of the clamp by means of the spindle
- Special steel



Universal ball joint separator

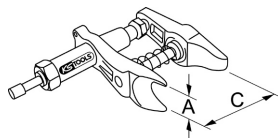
- For separating the ball plug in the extension of the ball joints
- Suitable for many vehicles + moderately heavy trucks
- For bolts Ø 27.0 - 36.0mm
- Upgrade without hydraulic cylinder possible
- Special steel



Item	A mm	C mm	mm	SW mm	kg
450.0070	32	75	M22 x 90	30	2.49
450.0071	45	80	M22 x 90	30	2.61

Universal ball joint separator

- For separating the ball plug in the extension of the ball joints
- Suitable for many vehicles + moderately heavy trucks
- Special steel



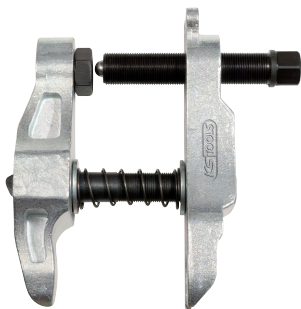
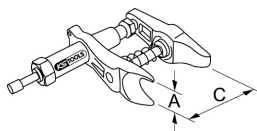
Item	A mm	C mm	max t	Adjusting screw mm	Ambos spindle mm	SW mm	kg
670.0151	36	90	10	M18 x 1,5 x 120	G1/2" x 14 x 110	22	3.50



Item	A mm	C mm	max t	SW mm	mm	kg
670.0131	36	90	10	22	G1/2" x 14g x 110	3.70

Universal ball joint separator

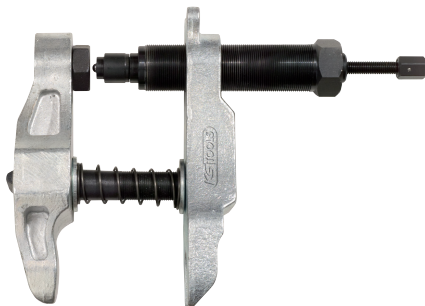
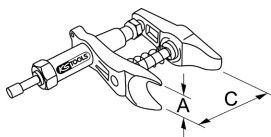
- For separating the ball plug in the extension of the ball joints
- Suitably for many heavy trucks, buses + low floor bus
- For bolts Ø 35.0 - 45.0mm
- Special steel



Item	A mm	C mm	max t	SW mm	mm	kg
670.0161	45	115	20	27	G3/4" x 14g x 125	6.40

Hydraulic universal ball joint separator

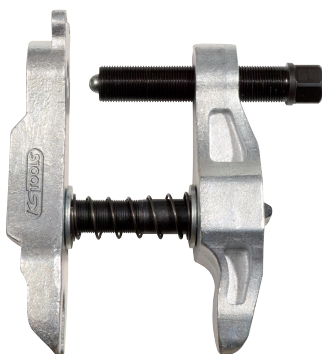
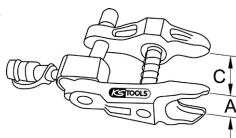
- For separating the ball plug in the extension of the ball joints
- Suitably for many heavy trucks, buses + low floor bus
- For bolts Ø 35.0 - 45.0 mm
- Special steel



Item	A mm	C mm	max t	SW mm	mm	kg
670.0171	45	115	20	17	M14 x 1,5 x 50	7.00

Universal ball joint separator without hydraulic cylinder

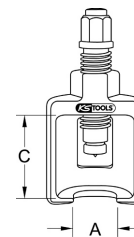
- For separating the ball plug in the extension of the ball joints
- Suitably for many heavy trucks, buses + low floor bus
- For bolts Ø 35.0 - 45.0mm
- Special steel



Item	A mm	C mm	max t	SW mm	mm	kg
670.0181	45	115	20	27	G3/4" x 14g x 125	6.00

Ball joint extractor cap „VIBRO IMPACT“

- Pressure pieces in the spindle rotating mouted
- Spindle suitable for impact wrenches
- Less space required
- Cast forged execution
- Special steel



Item	A mm	C mm	mm	SW mm	kg
450.0060	30	58	M22	18	1.10
450.0061	32	90	M24	25	2.51
450.0062	39	58	M24	25	2.83

Hydraulic universal ball joint extractor set

- Massive execution for loosening the track heads and push pole heads
- Enormous power through lever transmission
- Requires light expenditure of energy
- Special steel



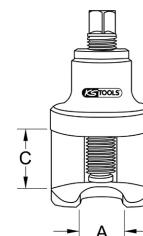
Item	kg
450.0050 3 pcs Hydraulic universal ball joint extractor set	6.55

Consists of:

Item	kg
450.0051 Ball joint puller HGV, mechanical	4.34
450.0052 Adaptor M24 x 3 for hydraulic thrust bolt.	0.66
700.1400-1 Hydraulic thrust bolt, 10 t	0.21

Impact ball joint puller

- Optimal positioning between suspension arm and axle casing
- Mouted spherical centering point
- Retrofit bar hydraulic pressure spindle
- Special steel



Item	A mm	C mm	mm	SW mm	kg
450.0085	35	60	M27 x 130	24	3.37

Hydraulic universal ball joint ejector set

- For extracting the ball joints and ball plug at track rod ends, direct transmissions and suspension axles
- Revolving cylinder reception
- Compact construction
- Requires light expenditure of energy
- Special steel



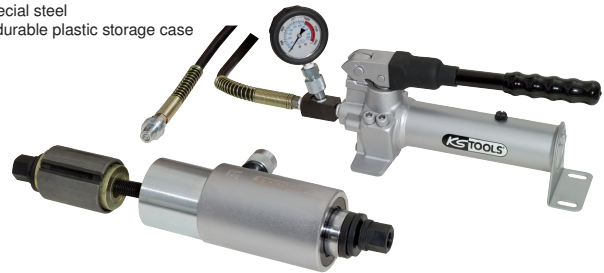
Item			kg
450.0120	6 pcs	Hydraulic universal ball joint ejector set	9.57

Consists of:

Item		kg
450.0121		2.40
450.0122		1.35
450.0123		1.27
450.0124		1.21
450.0126		2.90
450.0127		0.44

Hydraulic tension and pressure unit

- For the dismantling and assembly of silent support, steering pin, track rod ends, wheel bearings, etc.
- Extremely high and uniform power construction
- Industrial execution with forged piston
- Suitable for both pressure and train uses
- Ideally suited for commercial vehicles
- Special steel
- In durable plastic storage case



Technical data:

Hand pump:

Connection thread:	3/8" NPT IG
Hand pump:	700 bar high pressure pump
Manometer:	Ø 80 mm
Length:	410 x 150 x 135 mm
Weight:	5500g

Hollow piston cylinder:

Capacity:	20 to
Connection thread:	3/8" NPT IG
Piston:	Industrial forged execution
Stroke:	52 mm
Piston outside Ø:	55 mm
Bore Ø:	26 mm
Cylinder outside Ø:	98 mm
Cylinder height:	164 mm
Weight:	7300g

Hydraulic hose:

Connection thread:	3/8" NPT AG x 3/8" NPT AG
Length:	2000 mm
Weight:	1100g

Feed shaft:

Length:	500 mm
Thread:	M 20 x 2,5
Flat collar nut:	SW 30
Spherical washer :	Ø 36 mm
U-Washer:	Ø 51 x 7,5 mm, with central cone

Item		kg
700.1790	4 pcs	15.40

Hydraulic hand pump

- For the dismantling and assembly of silent support, steering pin, track rod ends, wheel bearings, etc.
- Extremely high and uniform power construction
- Suitable for both pressure and train uses
- Ideally suited for commercial vehicles
- Supplied without without manometer and hydraulic tube
- Special steel



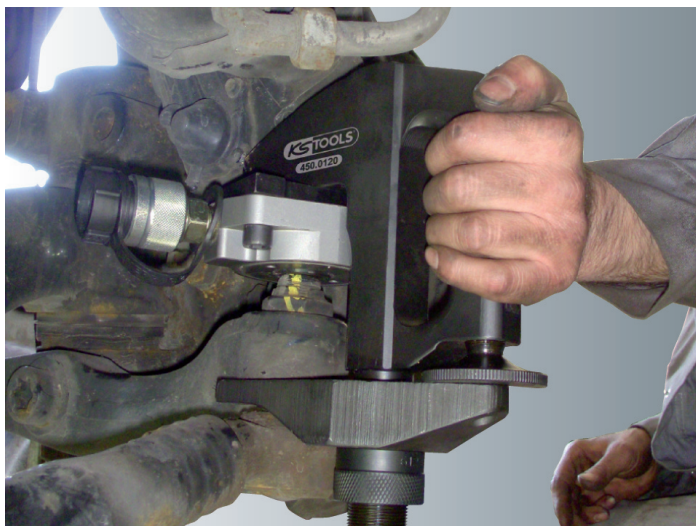
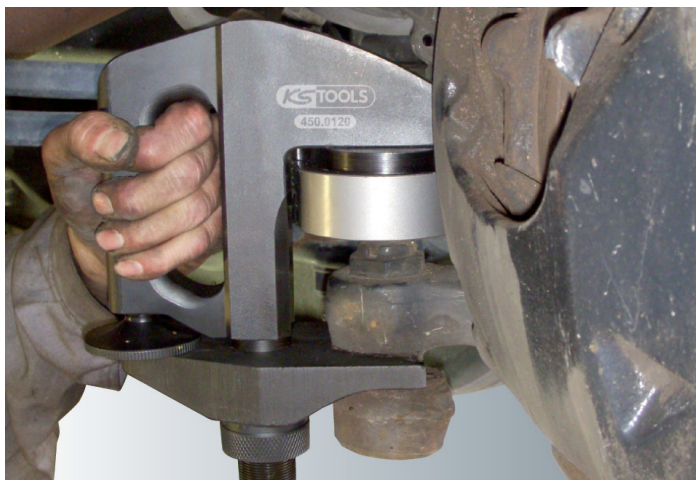
Technical data:

Connection thread:	3/8" NPT IG
Hand pump:	700 bar high pressure pump
Length:	410 x 150 x 135 mm

Item		kg
700.1792	Hydraulic hand pump:	5.50

Accessories:

Item		kg
700.1793	Hydraulics tube, 2 m including connection	1.10



Grease nipple cleaner

- For cleaning clogged grease nipples, slides and guides
- Suitable for pressing out of old and hardened grease
- No changing of the grease nipple necessary
- Includes flexible extension



Item		L mm	kg
980.1015	2 pcs	205.0	550

Consists of:

Item		kg
980.1016	Grease nipple cleaning press, L = 205 mm	365
980.1017	Adaptor flexible, L = 125 mm , AG M10 x 1/ IG M10 x 1	65

Brass and aluminium punch

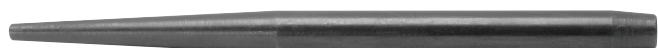
- For extracting bearing, bolts and bushes, etc.
- Rimed handle for better control
- Brass / Aluminium



Item	GW DIN 9134	Ø mm	L mm	kg
156.0415	Brass	20,0	300.0	1.13
156.0416	Aluminium	30,0	300.0	1.89

Centre punch

- Round
- Quenched and tempered
- Tip can be re sharpened
- Black surface finish
- Chrome vanadium



Item	L mm	D mm	S mm	kg
156.0340	150.0	5.0	10,0	70
156.0342	150.0	6.0	12,0	120
156.0344	210.0	7.0	14,0	170
156.0346	215.0	8.0	16,0	230
156.0348	220.0	9.0	18,0	310
156.0350	220.0	10.0	20,0	410
156.0352	220.0	11.0	22,0	510
156.0354	250.0	12.0	24,0	640

Truck punch

- Conical tapered point
- Universal use
- For extracting cotter pins, bolts, bearing rings, etc.
- Ideally suited for daily workshop use
- High quality and substantial construction
- Premium tempered and hardened steel
- Special steel



Item	Ø mm	L mm	kg
450.0091	6,4	300.0	390
450.0092	6,4	380.0	730
450.0093	8,0	300.0	410
450.0094	13,0	460.0	1310

Truck punch set

- Conical tapered point
- Universal use
- For extracting cotter pins, bolts, bearing rings, etc.
- Ideally suited for daily workshop use
- High quality and substantial construction
- Premium tempered and hardened steel
- Special steel



Item		kg
450.0090	4 pcs 6,4 - 6,4 - 8,0 - 13,0 mm	2.91



Bearing ring lever

- For removing tight fitting bearing housings
- Ideally suited for the external rings of the split cone roll bearings
- Conventional tools are no longer required
- Rimed handle for better control
- Universal applications
- Special steel



Item		L mm	kg
450.0030		300.0	1.13
450.0031		500.0	1.89

Truck flat chisel set

- Heavy execution
- Dimensionally stable 25 mm six point shaft
- For the preparation of truck rivets and welds
- Ideal for preparation working
- Chiseling of rusted bolts and nuts is possible
- Ideally suited for commercial vehicles
- Special steel



Item		kg
450.0025	2 pcs 400 - 600 mm	3.97

Adjustable joint roll head pry bar set

- Extremely versatile and robust execution
- Variable adjustable roll head
- Maximum power transmission in the narrowest area
- Optimal leverage in minimal work area
- Ideally suited for commercial vehicles
- Special steel



Item		kg
911.8175	3 pcs Adjustable joint roll head pry bar set	1.20

consists of:

Item		kg
911.8176	Ratched pry bar, 10"	600
911.8177	Ratched pry bar, 12"	600
911.8178	Ratched pry bar, 15"	600

XXL Adjustable joint roll head pry bar

- Extra long execution
- Extremely versatile and robust lever
- Variable adjustable roll head
- Maximum power transmission in the narrowest area
- Optimal leverage in minimal work area
- Ideally suited for commercial vehicles
- Special steel



Item	B mm	L mm	Assembly levels	kg
911.8179	25.0	620.0	5	1.81

Mechanics pry bar

- Angular lever end guarantees non slip surface
- Ideally suited for and breakdown and installation work
- Go through blade and hammer cap
- Suitable for the testing of defective bearings
- Dual component handle
- Massive execution specially for commercial vehicles
- Special steel



Item		L mm	kg
911.8411	0°	900.0	1.70
911.8412	45°	900.0	1.75
911.8413	75°	600.0	1.17
911.8414	90°	600.0	1.20
911.8415	45°	1120.0	4.75

Mechanics pry bar set

- Angular lever end guarantees non slip surface
- Ideally suited for and breakdown and installation work
- Go through blade and hammer cap
- Suitable for the testing of defective bearings
- Dual component handle
- Massive execution specially for commercial vehicles
- Special steel
- In durable plastic storage case



Item		kg
911.8410	4 pcs Mechanics pry bar set	8.70

consists of:

Item		kg
911.8411	Mechanics pry bar, straight 900 mm	1.70
911.8412	Mechanics pry bar 45°, angled head 900 mm	1.75
911.8413	Mechanics pry bar 75°, angled head 600 mm	1.17
911.8414	Mechanics pry bar 90°, angled head 600 mm	1.20



Bearing assembly and deassembly tool set

- Can be used manually with a hammer or workshop press
- Optimal placing through the pressure plates
- For easy and damage free assembly
- For the correct dismantling and assembly of bearings
- Suitable for commercial, agricultural engineering and construction machines
- Forged, robust execution
- Special steel
- In durable plastic storage case



Item				kg
450.0080	5 pcs	Bearing assembly and deassembly tool set		6.45

consists of:

Item				kg
450.0082	Pressure plates (use with press)			0.51
450.0083	Impact plates long (use with a hammer)			1.91
450.0084	Special 6 point socket for mandral shaft			0.34
450.0088	Universal 3 jaw thrust piece			0.20
450.0087	Locking bolt for jaw spreading			2.07

Universal bearing and bush driver set

- Universal applicable range
- Flexible use with hammer or hydraulic pressure spindle
- Applications from 18,0 - 65,0mm
- Pressure plates are for the two driving spindles
- Special steel



Item				kg
700.1350	51 pcs	Universal bearing and bush driver set		8.00

consists of:

Item				g
700.1348	Reception adaptor			500
700.1349	Impact drive knurled grip			42
700.1351	Pressure plate 18 mm			12
700.1352	Pressure plate 19 mm			14
700.1353	Pressure plate 20mm			16
700.1354	Pressure plate 21mm			20
700.1355	Pressure plate 22mm			22
700.1356	Pressure plate 23mm			27
700.1357	Pressure plate 24mm			30
700.1358	Pressure plate 25mm			34
700.1359	Pressure plate 26mm			38
700.1360	Pressure plate 27mm			43
700.1361	Pressure plate 28mm			47
700.1362	Pressure plate 29mm			50
700.1363	Pressure plate 30mm			53

consists of:

Item				g
700.1364	Pressure plate 31mm			59
700.1365	Pressure plate 32mm			65
700.1366	Pressure plate 33mm			68
700.1367	Pressure plate 34mm			72
700.1368	Pressure plate 35mm			77
700.1369	Pressure plate 36mm			82
700.1370	Pressure plate 37mm			89
700.1371	Pressure plate 38mm			94
700.1372	Pressure plate 39mm			97
700.1373	Pressure plate 40mm			105
700.1374	Pressure plate 41mm			111
700.1375	Pressure plate 42mm			119
700.1376	Pressure plate 43mm			125
700.1377	Pressure plate 44mm			132
700.1378	Pressure plate 45mm			138
700.1379	Pressure plate 46mm			144
700.1380	Pressure plate 47mm			153
700.1381	Pressure plate 48mm			159
700.1382	Pressure plate 49mm			165
700.1383	Pressure plate 50mm			172
700.1384	Pressure plate 51mm			181
700.1385	Pressure plate 52mm			188
700.1386	Pressure plate 53mm			196
700.1387	Pressure plate 54mm			205
700.1388	Pressure plate 55mm			213
700.1389	Pressure plate 56mm			221
700.1390	Pressure plate 57mm			231
700.1391	Pressure plate 58mm			238
700.1392	Pressure plate 59mm			247
700.1393	Pressure plate 60mm			258
700.1394	Pressure plate 61mm			266
700.1395	Pressure plate 62mm			276
700.1396	Pressure plate 63mm			284
700.1397	Pressure plate 64mm			294
700.1398	Pressure plate 65mm			305
700.1399	Support plate 75 mm			500

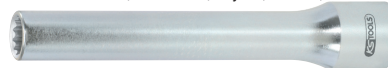
MOTOR

Special 12-point socket, deep

- Extra slim design
- Internal square drive to DIN 3120 / ISO 1174 with ball reception
- To dismantling and assembly of cylinder head and injection pump bolts
- Special steel

Application range: Mercedes Benz, Mitsubishi, Toyota, Suzuki, etc.

1/2"



Item	mm	D mm	L mm	g
455.0015	10	15.3	120.0	210

Special impact 12-point socket, deep

- 12-point
- Internal square drive to DIN 3121 / ISO 1174
- Ideally for the dismantling and/or assembly of cylinder head screws in commercial vehicles
- Long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum

Application range: Mercedes Benz, MAN, etc.

3/4"



Item	mm	L mm	g
455.0010	17,0	110.0	570
455.0011	19,0	110.0	600

Impact socket for TX screws, deep

- TX
- Internal square drive to DIN 3121 / ISO 1174
- Ideally for the dismantling and/or assembly of cylinder head screws in commercial vehicles
- Long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum

Application range: Mercedes Benz, MAN, etc.

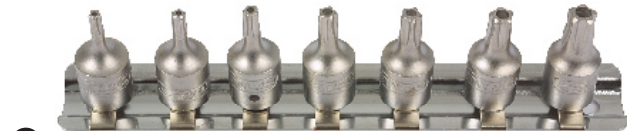


3/4"

Item		L mm	
455.0012	E18	110.0	620
455.0013	E20	110.0	670

Bit socket set for tamperproof five star screws

- Five star bit, tamperproof
- Internal square drive to DIN 3120 / ISO 1174 with ball reception
- For manual operation
- Matt finish
- Chrome vanadium
- Includes storage rail



1/4"

Item		
911.1470	7 pcs TS10 - TS15 - TS20 - TS25 - TS27 - TS30 - TS40	0.16

Consists of:

Item		
911.1471	1/4" Five Star Profile bit sockets, length 25 mm, TS10	10
911.1472	1/4" Five Star Profile bit sockets, length 25 mm, TS15	10
911.1473	1/4" Five Star Profile bit sockets, length 25 mm, TS20	10
911.1474	1/4" Five Star Profile bit sockets, length 25 mm, TS25	10
911.1475	1/4" Five Star Profile bit sockets, length 25 mm, TS27	10
911.1476	1/4" Five Star Profile bit sockets, length 25 mm, TS30	10
911.1477	1/4" Five Star Profile bit sockets, length 25 mm, TS40	10

Rotary angle disc

- For fastening screws at an angle
- Device for angle regulated fastening with a torque wrench
- Flexible arm
- Range 0° - 360°
- Square drive adaptor to DIN 3120 - ISO 1174 with ball lock
- Optionally with a magnetic arm or claw arm



1/2" 3/4"

Item			Arm	Pitch	D mm	H mm	L mm	
516.1195	1/2"	1/2"	Magnet	2°	67.0	63.0	480.0	170
516.1196	1/2"	1/2"	Claw	2°	67.0	63.0	538.0	60
516.1197	3/4"	3/4"	Magnet	2°	87.0	87.0	624.0	170
516.1198	3/4"	3/4"	Claw	2°	87.0	87.0	698.0	60

CLASSIC Bit set for tamperproof five star screws

- Five star bit, tamperproof
- External hexagon drive to DIN 3126 / ISO 1173 - E 6,3
- Can be used by hand or with and electric screwdriver
- 1/2" Bit adaptor socket
- Ideally suited for fittings in trade and industry
- Nickel plated
- Special steel



1/4"

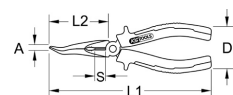
Item		
911.1480	8 pcs CLASSIC bit set for tamperproof five star bits	50

Consists of:

Item		
911.3101	1/4" Five star bits, tamper proof, length 25 mm, TS10	10
911.3102	1/4" Five star bits, tamper proof, length 25 mm, TS15	10
911.3103	1/4" Five star bits, tamper proof, length 25 mm, TS20	10
911.3104	1/4" Five star bits, tamper proof, length 25 mm, TS25	10
911.3105	1/4" Five star bits, tamper proof, length 25 mm, TS27	10
911.3106	1/4" Five star bits, tamper proof, length 25 mm, TS30	10
911.3107	1/4" Five star bits, tamper proof, length 25 mm, TS40	10
911.4327	1/4" Bit adaptor socket for 1/4" bits, with retaining ring, 25 mm	10

Fuel pipe pliers

- Two component handle
- Cranked execution
- Integrated cutting edge
- For loosening and tightening on fuel lines that are difficult to reach
- No damage of the overflow pipe
- Matt chrome
- Chrome vanadium



Ideally usable in security ring at fuel directions and change valve on BMW motorcycles with 2 valve technology Suitable e.g. for VW/Audi, Mercedes Benz, Ford, Opel, Peugeot, Volvo, Daihatsu, Mazda and Toyota.



Item	A mm	D mm	L1 mm	L2 mm	S mm	
115.1067	0,0-75,0	60.0	200.0	75.0	15,0	220

Open box head spanner

- 12 point
- Internal square to DIN 3120 / ISO 1174 with ball reception
- For loosening and fastening of screws and nuts
- For heavily accessible areas e.g. injection lines, etc.
- Ideally suited for commercial vehicles
- Special steel



1/2"

Item	mm	L mm	g
913.1211	12	100.0	122
913.1212	14	100.0	129
913.1213	16	100.0	146
913.1214	17	100.0	140
913.1215	18	100.0	145
913.1216	19	100.0	147

Open box head spanner set

- 12 point
- Internal square to DIN 3120 / ISO 1174 with ball reception
- For loosening and fastening of screws and nuts
- For heavily accessible areas e.g. injection lines, etc.
- Ideally suited for commercial vehicles
- Special steel



1/2"

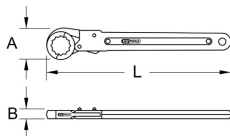
Item	pcs	mm	kg
913.1210	6 pcs	12 - 14 - 16 - 17 - 18 - 19 mm	1.13

Consists of:

Item		g
913.1211	Open box head spanner, 10mm	122
913.1212	Open box head spanner, 14mm	129
913.1213	Open box head spanner, 16mm	146
913.1214	Open box head spanner, 17mm	140
913.1215	Open box head spanner, 18mm	145
913.1216	Open box head spanner, 19mm	147

Ratchet ring spanner, clamp head

- 12 point
- Straight form
- Hanging hole
- From 27 mm with rubber handle
- Chrome plated handle
- Head phosphate finish
- Chrome vanadium



Item	mm	A mm	B mm	L mm	g
500.5010	10	10.0	31.9	155.0	82
500.5011	11	11.0	31.9	155.0	83
500.5012	12	12.0	31.7	155.0	85
500.5013	13	13.0	32.0	155.0	90
500.5017	17	17.0	35.2	210.0	148
500.5019	19	19.0	37.2	210.0	156
500.5022	22	22.0	40.9	210.0	270
500.5024	24	24.0	41.1	219.0	280
500.5027	27	27.0	49.7	315.0	340
500.5032	32	32.0	53.5	319.0	510

Ratchet ring spanner set, clamp head

- 12 point
- Straight form
- Hanging hole
- From 27 mm with rubber handle
- Chrome plated handle
- Head phosphate finish
- Chrome vanadium



Item	pcs	mm	g
500.5606	6 pcs	10 - 11 - 13 - 17 - 19 - 22 mm	980

Consists of:

Item		g
500.5010	Ratchet ring spanner, clamp head, 10mm	82
500.5011	Ratchet ring spanner, clamp head, 11mm	83
500.5013	Ratchet ring spanner, clamp head, 13mm	90
500.5017	Ratchet ring spanner, clamp head, 17mm	148
500.5019	Ratchet ring spanner, clamp head, 19mm	156
500.5022	Ratchet ring spanner, clamp head, 22mm	270

Diesel injector socket set

- Special socket key for dismantling and assembly of injectors
- Correct easy and damage free usage
- Internal square to DIN 3120 / ISO 1174 with ball reception
- Ideally suited for commercial vehicles, light commercial, SUV, etc
- Black, tempered surface
- Special steel
- In durable plastic storage case

Application range: MAN, Mercedes Benz Transporter and commercial vehicles, Opel, Fiat, VW, Ford, Nissan, etc.



1/2"

Item	pcs	mm	kg
455.0030	4 pcs	Diesel injector socket set	1.10

Consists of:

Item		g
455.0031	Diesel injector socket SW 28, 12 point	250
455.0032	Diesel injector socket SW 27, 12 point	250
455.0033	Diesel injector socket SW 22, 12 point	250
455.0034	Diesel injector socket SW 22, 6 point	250



Diesel injector socket

- 12 point
- Special socket key for dismantling and assembly of injectors
- Correct easy and damage free usage
- Internal square to DIN 3120 / ISO 1174 with ball reception
- Ideally suited for commercial vehicles, light commercial, SUV, etc
- Black, tempered surface
- Special steel

Application range: Mercedes Benz Actros, Motor 457 / 541 / 542, Ford Maverik 2,7 TDI, Nissan Terrano TD 2,5L / 2,7L, Opel Corsa 1,5D / 1,7 TD, Isuzu



1/2"

Item	mm	L mm	kg
455.0033	22	80.0	250

Diesel injector socket

- 6 point
- Special socket key for dismantling and assembly of injectors
- Correct easy and damage free usage
- Internal square to DIN 3120 / ISO 1174 with ball reception
- Ideally suited for commercial vehicles, light commercial, SUV, etc
- Black, tempered surface
- Special steel

Application range: Mercedes Benz, Motor 604 / 605 / 606



1/2"

Item	mm	L mm	kg
455.0034	22	110.0	250

Diesel injector socket

- 12 point
- Special socket key for dismantling and assembly of injectors
- Correct easy and damage free usage
- Internal square to DIN 3120 / ISO 1174 with ball reception
- Ideally suited for commercial vehicles, light commercial, SUV, etc
- Black, tempered surface
- Special steel

Application range: Suitable for diesel engines from Fiat, Ford, Mercedes Benz and VW (vans and cars), MAN 2,5 TD



1/2"

Item	mm	L mm	kg
455.0032	27	78.0	250

Diesel injector socket

- 12 point
- Special socket key for dismantling and assembly of injectors
- Correct easy and damage free usage
- Internal square to DIN 3120 / ISO 1174 with ball reception
- Ideally suited for commercial vehicles, light commercial, SUV, etc
- Black, tempered surface
- Special steel

Application range: MAN 6 cylinder in line D 0226, Chrysler Voyager, Jeep Cherokee, Opel Frontera VM 41 B, Rover, Landrover Discovery Motor VM 2,5L TD



1/2"

Item	mm	L mm	kg
455.0031	28	78.0	250

Special tooth socket for pre chamber

- Applicable for newer pre chamber nuts in Mercedes Benz diesel engines
- Internal square to DIN 3120 / ISO 1174 with ball reception
- 58 notched teeth
- Ideally suited for commercial vehicles
- Phosphate finish
- Special steel



1/2"

Item	No. teeth	L mm	kg
455.0005	58	60.0	215

Thrust bolt spigot socket set

- For the disassembly and assembly of the pressure screw on the injector body
- Assortment of the most important thrust spigot sockets
- Ideally suited for commercial vehicles
- In durable plastic storage case

Application range: Mercedes Benz and MAN commercial vehicles, etc.



Item	kg
455.0000 4 pcs Thrust bolt spigot socket set	1.01

consists of:

Item	kg
455.0001 Thrust bolt spigot socket Type 1	150
455.0002 Thrust bolt spigot socket Type 2	180
455.0003 Thrust bolt spigot socket Type 3	270
455.0004 Thrust bolt spigot socket Type 4	160




Thrust bolt spigot socket type 1

- For the disassembly and assembly of the pressure screw on the injector body
- 1/2" drive
- Ideally suited for commercial vehicles
- Special steel

Application range: Mercedes Benz and MAN commercial vehicles, etc.



1/2"

Item		Inner Ø mm	Outer Ø mm	L mm	Stud		
455.0001	1/2"	22	28.5	72.0	4	150	

Thrust bolt spigot socket type 2

- For the disassembly and assembly of the pressure screw on the injector body
- M14 fixing screw for non slip mounting
- Heagon drive SW 22
- Ideally suited for commercial vehicles
- Special steel

Application range: Mercedes Benz and MAN commercial vehicles, etc.




Item	SW mm	Inner Ø mm	Outer Ø mm	L mm	Stud		
455.0002	32	22	28.0	70.0	4	180	

Thrust bolt spigot socket type 3

- For the disassembly and assembly of the pressure screw on the injector body
- Permeable and open form
- Possible to extract the cable from the needle motion sensors
- Hexagon drive
- Ideally suited for commercial vehicles
- Special steel

Application range: Mercedes Benz Euro 2 engines, MAN engines, etc.



Item	SW mm	Inner Ø mm	Outer Ø mm	L mm	Stud		
455.0003	32	22	28.5	122.0	4	270	


Thrust bolt spigot socket type 4

- For the disassembly and assembly of the pressure screw on the injector body
- 1/2" drive
- Ideally suited for commercial vehicles
- Special steel

Application range: Mercedes Benz and MAN commercial vehicles, etc.




1/2"

Item		Inner Ø mm	Outer Ø mm	L mm	Stud		
455.0004	1/2"	23	30.0	121.0	3	160	

Valve spring tension

- Easy and quick change of the valve
- Expansion of the cylinder head is not necessary
- Use in conjunction with compressed air adapter 150.1105 / 150.1107
- Special steel




Item	L mm		
150.1210	130.0	442	


Piston ring tension band set

- For the pretensioning of the piston rings when inserting the piston in the cylinder
- Self locking ratchet function
- Phosphate finish
- In durable plastic storage case



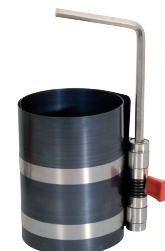
Item			
150.1150	7 pcs	Piston ring tension band set	1.62


Consists of:

Item			
150.1151	Piston ring tension band plier	380	
150.1152	Tension band, Ø 73 - 79 (2.7/8" - 3.1/8")	90	
150.1153	Tension band, Ø 79 - 86 (3.1/8" - 3.3/8")	90	
150.1154	Tension band, Ø 86 - 92 (3.3/8" - 3.5/8")	100	
150.1155	Tension band, Ø 92 - 98 (3.5/8" - 3.7/8")	110	
150.1156	Tension band, Ø 98 - 105 (3.7/8" - 4.1/8")	110	
150.1157	Tension band, Ø 105 - 111 (3.7/8" - 4.3/8")	120	

Piston ring tension band

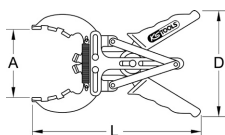
- For the pretensioning of the piston rings when inserting the piston in the cylinder
- Continuous adjustment of operating tool
- Spring steel strip



Item	Ø mm	Ø	H mm		
150.1141	45 - 90	1.3/4" - 3.1/2"	50.0	158	
150.1142	57 - 125	2.1/4" - 5"	100.0	300	
150.1143	90 - 175	3.1/2" - 7"	100.0	340	
150.1144	90 - 175	3.1/2" - 7"	150.0	555	

Piston ring pliers

- For the safe disassembly and assembly of piston rings
- Chrome plated
- With single component handle
- Special tool steel



Item	Ø mm	A mm	D mm	L mm	g
150.1175	50,0-110,0	0,0-110,0	60,0	210,0	305
150.1176	80,0-120,0	0,0-120,0	60,0	220,0	340
150.1177	110,0-160,0	0,0-158,0	60,0	280,0	445

Special drive shaft impact socket, long

- 12 point
- Internal square to DIN 3120 / ISO 1174 with ball reception
- For use in a 1/2" impact wrench
- For machinery usage
- Phosphate finish
- Chrome molybdenum

Application range: Drive shafts, flange shafts, fuel injectors, Mercedes Benz Truck Transmissions G2/24/26, Mercedes Benz Actros, etc.



1/2"

Item	mm	D mm	L mm	g
150.1703	27,0	40,5	85,0	350
150.1705	30,0	42,0	85,0	450
150.1706	32,0	44,0	85,0	490
150.1711	33,0	44,5	85,0	490
150.1704	34,0	46,0	85,0	430
150.1707	36,0	50,0	85,0	520

Valve grinding tool with 2 suction discs

- 8 mm bore reception
- For the grinding of the valve seats for repair work
- The detention of the device body is automatically generated via a transmission, the typical right left wing movement used in grinding
- Gives you convenient and rapid seat grinding with the drill between approx. 500-1.000 rpm



Item	L mm	Replacement plate Ø 22 mm	Replacement plate Ø 28 mm	g
150.1165	130,0	150.1166	150.1167	442

Impact universal ball joint

- Square drive adaptor to DIN 3121 / ISO 1174 with ball lock
- Internal square drive to DIN 3121 / ISO 1174
- Suspension
- For machinery usage
- Phosphate finish
- Chrome molybdenum



1/2"

Item	L mm	D mm	g
515.1133	67,0	28,0	170

Impact universal ball joint

- Square drive adaptor to DIN 3121 / ISO 1174
- Internal square drive to DIN 3121 / ISO 1174
- Suspension
- For machinery usage
- Phosphate finish
- Chrome molybdenum



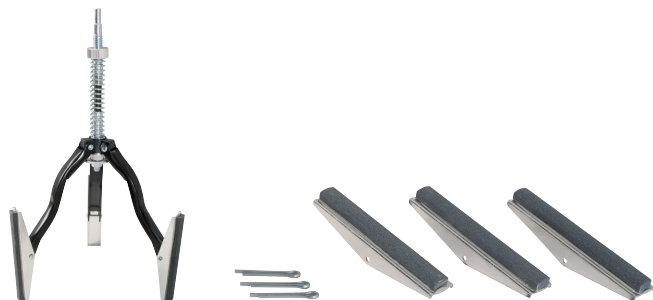
3/4"

Item	L mm	D mm	g
515.1374	108,0	44,0	700

Cylinder honing machine

- For honing / deburring of cylinders, bearings, bores, pipes, etc.
- Interchangeable honing
- Automatic spigot end and exact honing
- Flexible drive shaft for air or electric drills
- Special steel

Application range: Automotive brake and clutch cylinders, engine cylinders of motor cycles, lawn mowers, outboard motors, hydraulic cylinders, marine and industrial engines, etc.



Item	Ø mm	Arm	Honing stone set	kg
150.1180	18 - 63	2	150.1181	0.90
150.1185	19 - 69	3	150.1186	1.30
150.1190	32 - 89	3	150.1191	1.40
150.1195	51 - 177	3	150.1196	1.90



Impact universal ball joint

- Square drive adaptor to DIN 3121 / ISO 1174
- Internal square drive to DIN 3121 / ISO 1174
- Suspension
- For machinery usage
- Phosphate finish
- Chrome molybdenum



1"

Item	L mm	D mm	kg
515.1801	130.0	54.0	1.38

12 point impact socket

- 12 point
- Internal square drive to DIN 3121 / ISO 1174
- Short execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum
- In durable plastic storage case



1/2"

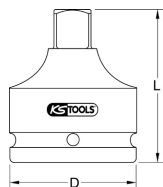
Item	kg
515.0900 13 pcs 10 - 12 - 13 - 14 - 15 - 16 - 17 - 19 - 20 - 21 - 22 - 23 - 24 mm	2.80

Consists of:

Item	kg
515.0910 1/2" Impact socket, 12 point, 10mm	100
515.0911 1/2" Impact socket, 12 point, 11mm	100
515.0913 1/2" Impact socket, 12 point, 13mm	100
515.0914 1/2" Impact socket, 12 point, 14mm	100
515.0915 1/2" Impact socket, 12 point, 15mm	140
515.0916 1/2" Impact socket, 12 point, 16mm	140
515.0917 1/2" Impact socket, 12 point, 17mm	140
515.0919 1/2" Impact socket, 12 point, 19mm	140
515.0920 1/2" Impact socket, 12 point, 20mm	140
515.0921 1/2" Impact socket, 12 point, 21mm	150
515.0922 1/2" Impact socket, 12 point, 22mm	150
515.0923 1/2" Impact socket, 12 point, 23mm	160
515.0924 1/2" Impact socket, 12 point, 24mm	160

Impact bit socket, hexagon

- Hexagon socket
- Internal square drive to DIN 3121 / ISO 1174
- Short execution
- For machinery usage
- Matt finish
- Chrome molybdenum



3/4"

Item	mm	L mm	D mm	kg
515.0001	14,0	60,0	40,0	140
515.0002	17,0	60,0	40,0	280
515.0003	19,0	60,0	40,0	340
515.0004	21,0	60,0	40,0	340
515.0005	22,0	60,0	40,0	340
515.0006	24,0	60,0	40,0	340

Impact bit socket set

- Hexagon
- Internal square drive to DIN 3121 / ISO 1174
- Short execution
- For machinery usage
- Matt finish
- Chrome molybdenum
- In durable steel storage case



3/4"

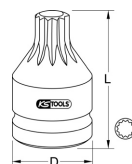
Item	kg
515.0000 6 pcs 14 - 17 - 19 - 21 - 22 - 24 mm	2.52

Consists of:

Item	kg
515.0001 3/4" Impact bit socket for hexagon, short, 14mm	140
515.0002 3/4" Impact bit socket for hexagon, short, 17mm	280
515.0003 3/4" Impact bit socket for hexagon, short, 19mm	340
515.0004 3/4" Impact bit socket for hexagon, short, 21mm	340
515.0005 3/4" Impact bit socket for hexagon, short, 22mm	340
515.0006 3/4" Impact bit socket for hexagon, short, 24mm	340

Impact bit socket for spline (XZN®) screws

- Spline (XZN®)
- Internal square drive to DIN 3121 / ISO 1174
- Short execution
- For machinery usage
- Matt finish
- Chrome molybdenum

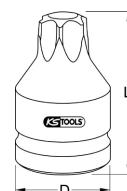


3/4"

Item	L mm	D mm	kg
515.0012 M16	60.0	40.0	270
515.0013 M18	60.0	40.0	270

Impact bit socket for TX

- TX
- Square drive according to DIN 3121 / ISO 1174
- Short execution
- For machinery usage
- Matt finish
- Chrome molybdenum



3/4"

Item	L mm	D mm	kg
515.0016 T70	60.0	40.0	270
515.0017 T80	60.0	40.0	270
515.0018 T90	60.0	40.0	280
515.0019 T100	60.0	40.0	290

Impact bit socket set

- TX and spline
- Internal square drive to DIN 3121 / ISO 1174
- Short execution
- For machinery usage
- Matt finish
- Chrome molybdenum
- In durable steel storage case



3/4"

Item				
515.0010	6 pcs	Impact bit socket set	2.20	

Consists of:

Item				
515.0012	3/4" Impact bit socket XZN, short, M16	270		
515.0013	3/4" Impact bit socket XZN, short, M18	270		
515.0016	3/4" Impact bit socket TX short, T70	270		
515.0017	3/4" Impact bit socket TX short, T80	270		
515.0018	3/4" Impact bit socket TX short, T90	280		
515.0019	3/4" Impact bit socket TX short, T100	290		

Impact interchangeable bit set

- 6 point
- Long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum
- In durable plastic storage case



3/4" 1"

Item				
450.0420	16 pcs	Impact interchangeable bit set	6.00	

Consists of:

Item				
450.0422	Impact bit socket, hexagon, 107mm, dim 17mm	360		
450.0423	Impact bit socket, hexagon, 107mm, dim 19mm	370		
450.0425	Impact bit socket, hexagon, 107mm, dim 22mm	380		
450.0426	Impact bit socket, hexagon, 107mm, dim 24mm	460		
450.0427	Impact bit socket, TX 107mm, T60	330		
450.0428	Impact bit socket, TX 107mm, T70	330		
450.0429	Impact bit socket, TX 107mm, T80	340		
450.0430	Impact bit socket, TX 107mm, T90	350		
450.0431	Impact bit socket, TX 107mm, T100	360		
450.0433	Impact bit socket, ETX, 107mm, E18	470		
450.0434	Impact bit socket, ETX, 107mm, E20	340		
450.0435	Impact bit socket, ETX, 107mm, E22	370		
450.0436	Impact bit socket, ETX, 107mm, E24	390		
450.0437	Impact bit socket adaptor, 3/4"x 22mm	260		
450.0438	Impact bit socket adaptor, 1"x 22mm	500		

Impact bit socket for hexagon screws, long

- Hexagon socket
- Internal square drive to DIN 3121 / ISO 1174
- Long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum



1"

Item	mm	L mm	D mm		
450.0491	17,0	145.0	51.0	992	
450.0492	19,0	145.0	51.0	1006	
450.0493	22,0	145.0	51.0	1030	
450.0494	24,0	145.0	51.0	1080	

Impact bit socket for TX screws, long

- TX
- Internal square drive to DIN 3121 / ISO 1174
- Long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum



1"

Item		L mm	D mm		
450.0471	T60	145.0	51.0	950	
450.0472	T70	145.0	51.0	970	
450.0473	T80	145.0	51.0	976	
450.0474	T90	145.0	51.0	986	
450.0475	T100	145.0	51.0	1000	

Impact bit socket for TX-E screws, long

- TX-E
- Internal square drive to DIN 3121 / ISO 1174
- Long execution
- For machinery usage
- Phosphate finish
- Chrome molybdenum



1"

Item		L mm	D mm		
450.0481	E18	145.0	51.0	992	
450.0482	E20	145.0	51.0	1012	
450.0483	E22	145.0	51.0	1020	
450.0484	E24	145.0	51.0	1068	

Engine crank alignment type 1

- Allows the engine crank to be manually adjusted
- Allows pinpoint accuracy calibration
- 1/2" external square drive
- 1/2" drive can be used with a ratchet
- Adjusting screw in the clutch housing
- Ideal for adjustments to the engine
- Special steel

Application range: Mercedes Benz 6-/8- and 10-cylinder engines, MAN 12-cylinder engines, etc.



1/2"

Item		H mm	No. of gears		
455.0020	1/2"	70.0	2	130.1000	450

Steel strap filter wrench

- Extremely rugged steel strap wrench
- For loosening heavy duty oil and fuel filters
- Secure grip of the filter
- 1/2" square drive
- High performance guaranteed professional work
- Automatic adjustment in the specified diameter range
- Ideal for compressed air cartridges
- Special steel



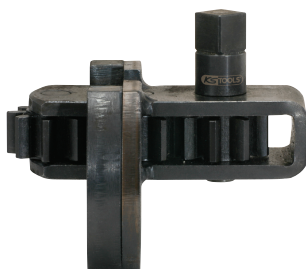
1/2"

Item	Ø mm	Ø	H mm	
455.0050	105 - 118	4.1/8" - 4.21/32"	75.0	930
455.0051	118 - 130	4.21/32" - 5.5/32"	75.0	950
455.0052	130 - 143	5.5/32" - 5.21/32"	75.0	990

Engine crank alignment type 2

- Allows the engine crank to be manually adjusted
- Allows pinpoint accuracy calibration
- 1/2" external square drive
- 1/2" drive can be used with a ratchet
- Adjusting screw in the clutch housing
- Ideal for adjustments to the engine
- Special steel

Application range: Mercedes Benz Actros and Atego, MAN 5-/6- and 8-cylinder engines - D25/28, etc.



1/2"

Item		H mm	No. of gears		
455.0021	1/2"	100.0	3	130.1000	790

Filter strap wrench

- Robust and especially high quality webbing
- For loosening heavy duty oil and fuel filters
- Particularly large work area and light weight
- 1/2" square drive
- Little space required on the outer diameter of the filter
- Ideally suited to tighten round fittings
- Stable nylon strap



1/2"

Item	Ø mm	Ø	H mm	
455.0055	150,0	6"	50.0	380

Chain wrench

- For loosening oil filters and air dryer cartridges
- Double chain
- Extremely robust
- Dipped covered handle
- Chrome vanadium



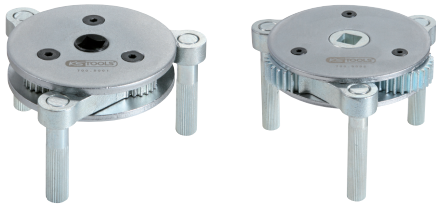
1/2"

Item	Ø mm	
150.9375	130,0	380
150.9376	165,0	380



Filter wrench 3 arm

- For oil filter and air dryer cartridges
- Forged execution
- 1/2" square drive
- Automatic adjustment in the specified diameter range
- For heavy workshop applications
- Special steel



1/2"

Item	Ø mm	kg
700.5001	80 - 120	630
700.5002	95 - 165	1400

Oil filter wrench

- For loosening and tightening oil filter housing covers
- Torque specification embossed in the wrench
- 3/8" square drive + hexagon drive SW 21
- Painted surface



3/8"

Item	Suitable for	SW mm	Stages	Grooves	Sides	kg
150.9366	Mercedes Benz, Mazda	27	1		6	60
150.9367	VW, Audi, Opel	32	1		6	70
150.9368	Mercedes Benz, BMW, Ford, VW, Rover, Opel	36	1		6	80

Oil filter wrench set

- For loosening and tightening oil filter housing covers
- Torque specification embossed in the wrench
- 3/8" square drive + hexagon drive SW 21
- Painted surface
- In durable plastic storage case



3/8"

Item	kg
150.9365 3 pcs Oil filter wrench set	0.32

Consists of:

Item	kg
150.9366 Oil filter wrench 27 mm	60
150.9367 Oil filter wrench 32 mm	70
150.9368 Oil filter wrench 36 mm	80

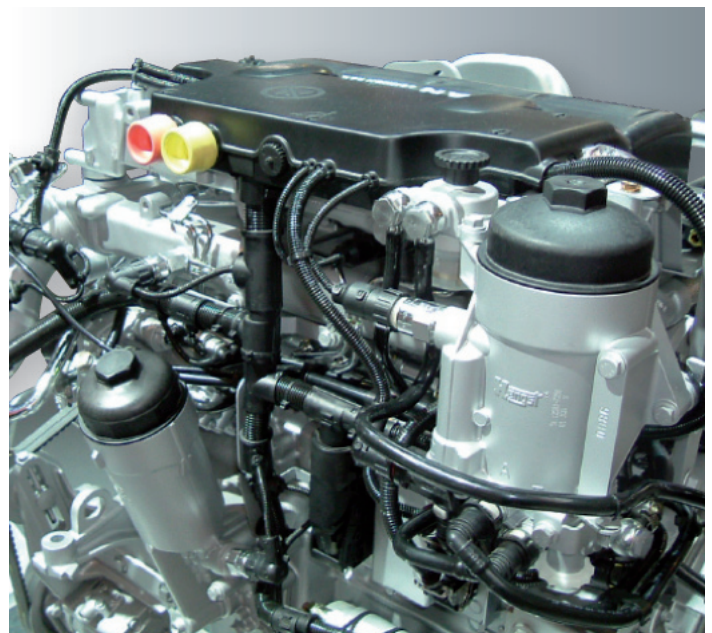
Oil filter wrench

- For loosening and tightening oil filter housing covers
- Use according to the manufacturer's specification for torque
- 3/8" square drive
- Painted surface



3/8"

Item	Suitable for	SW mm	Stages	Grooves	Sides	kg
150.9319	Toyota, Nissan, Mazda	64	1		14	140
150.9321	Daihatsu, Toyota, Nissan, Fiat	65	1	6	14	150
150.9336	Fiat, Renault	66	1		190	
150.9330	Daihatsu, Toyota	65/67	2		14	150
150.9322	Mazda, Ford, Subaru	68	1		14	320
150.9323	Toyota, Lexus	73	1		14	150
150.9337	Audi, Gm, Rover, Chrysler	74	1		15	220
150.9324	Ford, Opel, VW, Audi, Mercedes Benz	74/76	2		15	170
150.9333	VW, Audi, Ford, Isuzu, Mercedes Benz, Opel	75/77	2		15	150
150.9338	Fiat, Renault, Mercedes Benz	76	1	12	190	
150.9325	VW, Mercedes Benz, Porsche, BMW, Audi, Opel	76	1		14	150
150.9339	Fiat, Lancia	76	1	8	170	
150.9334	Ford	76	1	30	150	
150.9341	Nissan, Ford, Toyota	78	1		15	170
150.9326	Nissan, Honda, Opel, Mazda	80	1		15	150
150.9331	Subaru, Toyota, Honda, Mazda, Nissan	80/82	2		15	150
150.9343	Volvo	86	1		16	180
150.9342	VW, Audi, Renault, Peugeot, Citroën	86	1		18	190
150.9332	Honda, Mitsubishi, Isuzu	90	1		15	150
150.9344	Fiat, Lancia	92	1		10	180
150.9327	Mazda, Mitsubishi, Volvo, Nissan, Honda	93	1		15	150
150.9329	Ford	93	1	36	150	
150.9345	VW, Audi	93	1	45	180	
150.9346	Toyota, Alfa, GM, Ford, Ford, Chrysler	95	1	15	190	
150.9347	VW, Audi, Renault	96	1	18	190	
150.9335	Isuzu, Mitsubishi	100	1		15	150
150.9348	Fiat	106	1		15	200
150.9349	Volvo	108	1		15	220
150.9351	Renault	108	1	18	190	



Oil filter wrench set

- For loosening and tightening oil filter housing covers
- Use according to the manufacturer's specification for torque
- 3/8" square drive
- Painted surface
- In durable plastic storage case



3/8"

Item				kg
150.9290	9 pcs	Oil filter wrench set		3.40

Consists of:

Item				kg
150.9291	Oil filter wrench, SW 36 mm			70
150.9292	Oil filter wrench, SW 74 mm			140
150.9293	Oil filter wrench, SW 106 mm			200
150.9294	Oil filter wrench, SW 107 mm			370
150.9295	Oil filter wrench, SW 108 mm			210
150.9296	Oil filter wrench, SW 108, 18 grooves			210
150.9297	Oil filter wrench, SW 135 mm			510
150.9298	1/2" Strap wrench, up to 160 mm			140
150.9299	Ring spanner SW 24 mm, 12 point			270

55 litre drain pan, extra flat

- Four carry handles
- 11 cm extra high flat edge
- Suitable for oil, chemicals, gasoline, acids and antifreeze
- Wrap around walls bent inwards to prevent spillage during transport
- Polythylene



Item	L mm	B mm	H mm	kg
150.9358	1030.0	724.0	110.0	6.80

Truck oil filter wrench, cup shaped

- Oil filter cup shaped
- Ideal in confined spaces
- For loosening and tightening oil filters
- Internal square or hexagon drive
- Special steel



Item	Suitable for	SW mm	Stages	Grooves	Sides	kg
150.9291	Mercedes Benz, Scania	36,0	1		6	70
150.9292	Mercedes Benz	74,0	1		14	140
150.9293	MAN, Scania, Fiat, Iveco	106,0	1		15	200
150.9294	Volvo, Iveco, Renault, Scania	107,0	1		15	370
150.9295	Volvo, Iveco, Renault, Scania	108,0	1		15	210
150.9296	Renault, Opel	108,0	1	18		210
150.9297	MAN	135,0	1		18	510

Alternator set

- For the disassembly and assembly of free running pulleys when changing the alternator or belt pulley
- Allows the dissolution and attaching the central nut at the same time countertensioning the pulley shaft
- Suitable for a wide range of applications
- The development of additional spare parts such as condenser
- In durable plastic storage case

Application range: Bosch and Magneti Marelli alternators, Audi, BMW, Fiat, Ford, Mercedes, Opel, Porsche, Renault, Peugeot, Sear, Skoda, VW, etc



Item				kg
150.3100	13 pcs	Alternator set		1.20

Consists of:

Item				kg
150.3101	Combination key 1/2", TX 50 x 33 teeth, l = 110 mm			170
150.3102	Combination key 1/2", XZN® M10 x 33 teeth, l = 110 mm			170
150.3103	Spline insert dim 15 x 33 teeth, bored			50
150.3104	Spline insert dim 22 x 33 teeth, bored			30
150.3105	Adaptor dim 22, l = 30 mm, bored			70
150.3106	Spline insert dim 22 x 33 teeth, bored			120
150.3107	Special bit 10 mm, hexagonal 8 mm, l = 75 mm			60
150.3108	Special bit 10 mm, hexagonal 10 mm, l = 75 mm			60
150.3109	Special bit 10 mm, XZN® M8, l = 75 mm			60
150.3110	Special bit 10 mm, XZN® M10, l = 75 mm			60
150.3111	Special bit 10 mm, TX 40, l = 75 mm			60
150.3112	Special bit 10 mm, TX 50, l = 75 mm			60
918.1271	1/2" CHROMEplus® Bit adaptor sockets with retaining clip, 1/2" x 10mm			40




HGV terminal extractor tool set, basic


- Universal application in the field of electrics in commercial vehicles
- Precision tool to repair a breakdown or failure electrical links
- Contains a selection of the most common single tools
- Professional and non destructive release of contacts
- Optimum protection against unwanted mechanical action by safety bar
- In durable plastic storage case

Application range: Iveco, Mack, MAN, Mercedes Benz, Renault, Scania, Volvo



Item				
150.1255	6 pcs	HGV terminal extractor too set, basic	650	

Consists of:


Item				
150.1296	ABS assembling aid		20	
150.1298	Cable release for secondary locking		40	
150.1297	Cable release with 2 snap in pins, contact width 1,5 mm		40	
150.1265	Cable release for flat socket contacts Micro-Timer 2+3		30	
150.1262	Cable release for round socket contacts 3,5 mm		30	
150.1292	Release for round contact Ø 4,0 mm		40	

HGV terminal extractor tool set


- Universal application in the field of electrics in commercial vehicles
- Precision tool to repair a breakdown or failure electrical links
- Contains a selection of the most common single tools
- Professional and non destructive release of contacts
- Optimum protection against unwanted mechanical action by safety bar
- In durable plastic storage case

Application range: Iveco, Mack, MAN, Mercedes Benz, Renault, Scania, Volvo



Item				
150.1215	14 pcs	HGV terminal extractor tool set	743	

Consists of:


Item				
150.1256	Release for round socket contacts 4,0mm (ABS)		38	
150.1261	Cable release for round socket contacts 1,5 mm		30	
150.1262	Cable release for round socket contacts 3,5 mm		30	
150.1264	Cable release for flat socket contacts 1,48 mm		30	
150.1269	Cable release for flat socket contacts JPT/SPT		30	
150.1288	Release for flat contact with double snap in pin 2,8 mm		20	
150.1290	Release for plug-in contacts with 4 snap in pins, MKS / MKR 1.5		30	
150.1291	Release for plug-in contacts with 4 snap in pins, VKR / contacts		30	
150.1292	Release for round contact Ø 4,0 mm		30	
150.1270	Demounting sleeve 3,3 x 30 mm		10	
150.1271	Demounting sleeve 5,0 x 30 mm		10	
150.1272	Demounting sleeve 3,3 x 35 mm		10	
150.1293	Demounting sleeve 4,0 mm		10	
150.1296	ABS assembling aid		20	

Test probe 6-24V DC with 25 meter cable

- Ideal standard lamp with many test functions
- High speed functional testing without removal of components
- Via toggle switches can be plus or minus given to the probe
- Built in bi metal short circuit protection
- No protection wear for troubleshooting
- Version with replaceable probe and alligator clip
- For continuity test, self test and fault diagnosis
- Immediate polarity determination by LED display

Application area: 6-24V DC
Cable length: 25 m
Test probe diameter: Ø 4 mm




Item	Application area	Replacement tip	
150.1655	6 - 24 V DC	150.1671	1.26


Probe and test adaptor set

- For use with test probe 150.1665 + 150.1655
- High quality testing and test accessories
- For use in conjunction with test probe
- Flexible silicon cable
- Extra thin test probe
- Bi color test leads for polarity indication



Item				
150.1675	13 pcs	Probe and test adaptor set	300	

Consists of:

Item				
150.1667	Inspection and test equipment, cable 1m, red		30	
150.1668	Inspection and test equipment, cable 1m, black		30	
150.1669	Inspection and testing equipment, injection probe		30	
150.1672	Inspection and test equipment, LED test leads		10	
150.1673	Inspection and test equipment, needle test leads, black		10	
150.1674	Inspection and test equipment, needle test leads, red		10	
150.1676	Inspection and test equipment, probe, black		10	
150.1677	Inspection and test equipment, probe, red		10	
150.1678	Inspection and test equipment, clamps, red		20	
150.1679	Inspection and test equipment, clamps, black		20	

item	page	item	page	item	page	item	page	item	page
1		115.1072	462	115.5050	541, 548	122.1303	512	140.2193	452
100.10	611	115.1073	462	115.5052	548	122.1304	512	140.2194	452
100.12	611	115.1074	462	115.5053	548	122.1305	512	140.2201	480
100.4005	503	115.1075	462	115.5054	548	122.1306	512	140.2202	477
100.4010	503	115.1076	461	116.1035	488	129.3740	460	140.2203	476
100.4015	503	115.1077	461	116.1400	457, 500	129.3742	460	140.2205	479
100.4020	504	115.1078	462	116.1401	457, 500	129.3744	460	140.2206	478, 479
100.4045	504	115.1079	462, 467	116.1403	457, 467, 500	129.3746	460	140.2207	478, 479
100.4050	504	115.1080	463	116.1404	457, 500	129.3750	460	140.2208	452
100.4060	503	115.1081	463	116.1405	457, 500	129.3752	460	140.2210	478, 479, 480
100.4070	498	115.1082	463	116.1406	457, 500	129.3754	460	140.2211	479
100.4071	498	115.1083	463	116.1407	457, 500	129.3756	460	140.2212	479
100.4075	498	115.1084	464, 521	116.1408	457, 500	140.1003	485	140.2213	478
100.4076	498	115.1086	448	116.1415	457	140.1005	485	140.2214	478, 479
100.4080	499	115.1087	448	118.0050	459	140.1006	485	140.2215	478, 479
100.4085	499	115.1088	448	118.0051	458	140.1007	485	140.2216	476
100.4088	499	115.1090	541, 548	118.0052	458	140.1010	485	140.2217	476
100.4090	498	115.1091	547, 548	118.0053	459	140.1015	485	140.2218	476
100.4091	498	115.1092	547, 548	118.0055	458, 467	140.1020	485	140.2219	482
100.4095	498	115.1093	547, 548	118.0056	458	140.1040	478	140.2220	486
100.5050	503	115.1094	541, 547	118.0057	458	140.1060	484	140.2223	447
100.5060	503	115.1095	541, 590	118.0058	458	140.2090	467	140.2224	447
101.1000	516	115.1096	448	118.0075	502	140.2091	467	140.2225	486, 621
101.2000	516	115.1097	448	119.1014	601	140.2092	467	140.2226	486, 621
101.5000	516	115.1098	448	120.1050	510, 516	140.2093	467	140.2229	484
101.5016	516	115.1099	541, 547	120.2000	517	140.2100	467	140.2230	447, 478
101.5022	516	115.1150	462	122.1230	515	140.2105	470	140.2231	478
103.1000	510	115.1155	462, 578	122.1231	515, 516	140.2106	470	140.2232	447
104.5050	578, 580	115.1160	463	122.1232	515, 516	140.2107	470	140.2233	484
105.2000	510	115.1165	463	122.1233	515, 516	140.2110	470	140.2234	484
114.0050	514	115.1170	463	122.1234	515, 516	140.2111	470	140.2235	484
114.0051	514	115.1180	461	122.1236	515, 516	140.2112	467, 470	140.2236	484
114.0150	541, 543	115.1185	520	122.1237	515, 516	140.2113	471	140.2237	484
115.1014	601	115.1186	521	122.1238	515, 516	140.2114	467, 471	140.2238	483
115.1025	514	115.1187	589	122.1239	515, 516	140.2115	467, 470	140.2239	481
115.1028	601	115.1188	589	122.1240	515, 516	140.2116	467, 470	140.2240	484
115.1029	601	115.1230	602	122.1241	515, 516	140.2117	470	140.2241	478, 480
115.1031	460, 467	115.1231	602	122.1242	515, 516	140.2118	470	140.2244	480
115.1032	460, 467	115.1240	601	122.1243	515, 516	140.2119	467, 471	140.2245	479
115.1033	460, 467	115.1244	601	122.1244	515	140.2120	471	140.2248	480, 481
115.1034	461, 467	115.1245	601	122.1250	515	140.2125	467	140.2249	448
115.1035	461, 467	115.1249	601	122.1251	515, 516	140.2130	468	140.2250	478
115.1036	460	115.1260	590	122.1252	515, 516	140.2131	469	140.2251	482, 483
115.1037	460	115.1261	590	122.1253	516	140.2132	467, 468	140.2252	482, 483
115.1038	461	115.1262	590	122.1254	515, 516	140.2133	467, 469	140.2255	482, 483
115.1039	520	115.1263	590	122.1255	515, 516	140.2134	468	140.2256	482, 483
115.1040	589	115.1264	590	122.1256	515, 516	140.2135	468	140.2261	482, 483
115.1041	541, 588	115.1265	590	122.1257	515, 516	140.2136	469	140.2263	482, 483
115.1042	541, 588, 590	115.1266	590	122.1258	515, 516	140.2137	467, 469	140.2267	482
115.1043	588, 590	115.1267	590	122.1259	515, 516	140.2138	468	140.2268	482
115.1044	541, 549, 588	115.1268	590	122.1261	516	140.2139	467, 469	140.2269	482
115.1045	541, 588, 589	115.1269	590	122.1262	516	140.2150	469	140.2270	482
115.1046	588, 589	115.1270	590	122.1263	516	140.2151	467, 469	140.2271	482
115.1047	588, 589	115.1271	590	122.1270	514	140.2162	457, 467, 578	140.2272	482
115.1050	520	115.1272	590	122.1271	514	140.2165	457	140.2273	481
115.1051	447	115.1273	590	122.1272	514	140.2175	457	140.2274	481
115.1052	602	115.1274	590	122.1273	514, 515	140.2180	452	140.2275	482
115.1053	521	115.1275	590	122.1274	514, 515	140.2181	452	140.2276	482
115.1054	595	115.1276	590	122.1275	514, 515	140.2182	452	140.2277	481
115.1055	588	115.1277	590	122.1276	514, 515	140.2183	452	140.2278	481
115.1056	521	115.1278	590	122.1277	514, 515	140.2184	452	140.2279	448
115.1057	589	115.1279	590	122.1278	514, 515	140.2185	452	140.2282	483
115.1059	521	115.1280	590	122.1279	514, 515	140.2186	452	140.2284	483
115.1061	575	115.1281	590	122.1280	514	140.2187	452	140.2285	477
115.1065	589	115.1282	590	122.1281	514	140.2188	452	140.2286	483
115.1067	548, 655	115.1314	601	122.1282	514	140.2189	452	140.2288	483
115.1068	461	115.1361	514	122.1300	512	140.2190	452	140.2290	483
115.1070	461	115.1362	527	122.1301	512	140.2191	452	140.2291	483
115.1071	462, 467	115.1363	527, 578	122.1302	512	140.2192	452	140.2292	481

item	page	item	page	item	page	item	page	item	page
140.2293	481	140.5274	491	150.1153	658	150.1293	596, 665	150.1584	573
140.2294	481	140.5275	491	150.1154	658	150.1294	597, 600	150.1594	573
140.2295	481	140.5276	491	150.1155	658	150.1295	597, 600	150.1595	573
140.2296	482	140.5277	491	150.1156	658	150.1296	596, 665	150.1596	573
140.2297	482	141.6010	603	150.1157	658	150.1297	596, 665	150.1597	573
140.2298	482	150.0501	551	150.1160	576	150.1298	596, 665	150.1598	573
140.2299	482	150.0502	551	150.1165	577, 659	150.1299	597	150.1599	573
140.2300	446	150.0503	551	150.1170	576	150.1305	551	150.1605	452
140.2301	446, 447	150.0504	551	150.1175	577, 659	150.1305-21	551	150.1611	447
140.2302	446, 447	150.0505	551	150.1176	577, 659	150.1305-22	551	150.1612	447
140.2303	446, 447	150.0506	551	150.1177	577, 659	150.1305-23	551	150.1613	447
140.2304	446, 447	150.0507	551	150.1179	577	150.1305-24	551	150.1614	447
140.2305	446, 447	150.0508	551	150.1180	577, 659	150.1305-25	551	150.1615	447
140.2310	447	150.0509	551	150.1185	577, 659	150.1330	551	150.1616	447
140.2311	447	150.0510	551	150.1190	577, 659	150.1340	645	150.1617	447
140.2313	447	150.0511	551	150.1195	577, 659	150.1345	645	150.1618	447
140.2315	447	150.0512	551	150.1200	583	150.1371	552	150.1619	447
140.2316	447	150.0513	551	150.1201	583	150.1373	552	150.1620	447
140.2317	447	150.0514	551	150.1202	583	150.1375	552	150.1621	447
140.2320	478	150.0515	551	150.1203	583	150.1379	552	150.1622	447
140.2321	478	150.0521	551	150.1204	583	150.1381	552	150.1623	447
140.2322	478	150.0522	551	150.1205	583	150.1385	552	150.1624	447
140.2323	478	150.0523	551	150.1210	576, 658	150.1386	552	150.1625	447
140.2324	478	150.0524	551	150.1215	596, 665	150.1387	552	150.1626	447
140.2330	478	150.0525	551	150.1220	596	150.1388	552	150.1630	447
140.2331	478	150.1070	500	150.1225	596	150.1389	552	150.1635	527
140.2332	478	150.1071	500, 637	150.1230	597	150.1390	552	150.1640	527
140.2340	481	150.1072	500	150.1235	597	150.1391	552	150.1645	593
140.2341	481	150.1073	500	150.1240	578, 579	150.1392	552	150.1650	593
140.2342	481	150.1074	500, 637	150.1241	578, 579	150.1393	552	150.1650-1	593
140.2343	481	150.1075	500, 637	150.1242	578, 579	150.1394	552	150.1650-10	593
140.2344	481	150.1080	500, 637	150.1245	579	150.1395	552	150.1650-2	593
140.2345	481	150.1082	500, 637	150.1246	597	150.1430	645	150.1650-3	593
140.2351	477	150.1083	500, 637	150.1247	597	150.1447	542	150.1650-4	593
140.2352	477	150.1100	575	150.1248	597	150.1448	542	150.1650-5	593
140.2353	480	150.1101	575	150.1249	597	150.1449	542	150.1650-6	593
140.2354	480	150.1103	575	150.1251	596, 597	150.1450	542	150.1650-7	593
140.2356	481	150.1104	575	150.1255	596, 665	150.1451	542	150.1650-8	593
140.2357	481	150.1105	575	150.1256	596, 665	150.1452	542	150.1650-9	593
140.2358	481	150.1106	575	150.1257	597	150.1453	542	150.1655	594, 665
140.2400	464	150.1107	575	150.1258	597	150.1454	542	150.1660	549
140.2405	464	150.1108	575	150.1260	595	150.1455	542	150.1665	549
140.2410	464	150.1109	575	150.1261	596, 597, 665	150.1456	542	150.1667	594, 665
140.2415	465	150.1110	575	150.1262	596, 597, 665	150.1457	542	150.1668	594, 665
140.2420	465	150.1111	575	150.1263	596, 597, 598	150.1458	542	150.1669	594, 665
140.2425	465	150.1112	575	150.1264	597, 598, 665	150.1459	542	150.1670	594
140.2430	465	150.1113	575	150.1265	597, 598, 665	150.1466	520	150.1672	594, 665
140.2435	465	150.1114	575	150.1266	595, 597, 598	150.1470	520	150.1673	594, 665
140.2440	465	150.1115	575	150.1267	595, 597, 598	150.1471	520	150.1674	594, 665
140.2445	466	150.1116	575	150.1268	596, 597, 598	150.1472	520	150.1675	594, 665
140.2450	466	150.1117	575	150.1269	597, 598, 665	150.1473	520	150.1676	594, 665
140.2455	466	150.1118	575	150.1270	596, 597, 665	150.1474	520	150.1677	594, 665
140.3090	464, 467	150.1119	575	150.1271	596, 597, 665	150.1475	520	150.1678	594, 665
140.4003	468	150.1120	575	150.1272	595, 596, 665	150.1476	520	150.1679	594, 665
140.5221	492	150.1121	575	150.1273	598	150.1477	520	150.1680	593
140.5222	492	150.1122	575	150.1274	596, 598	150.1478	520	150.1680-1	593
140.5223	492	150.1124	575	150.1275	596, 598	150.1500	579	150.1680-10	593
140.5252	492	150.1130	576	150.1276	596, 598	150.1505	580	150.1680-11	593
140.5254	492	150.1131	576	150.1277	597, 599	150.1510	578, 580	150.1680-12	593
140.5255	492	150.1132	576	150.1278	597, 599	150.1515	580	150.1680-13	593
140.5256	492	150.1135	576	150.1279	597, 599	150.1520	578, 579	150.1680-2	593
140.5257	492	150.1140	576	150.1285	597, 599	150.1525	578, 579	150.1680-3	593
140.5258	492	150.1141	658	150.1286	597, 599	150.1530	578, 579	150.1680-4	593
140.5259	492, 635	150.1142	658	150.1287	597, 599	150.1535	578, 579	150.1680-5	593
140.5260	635	150.1143	658	150.1288	596, 599, 665	150.1540	578	150.1680-6	593
140.5270	491	150.1144	658	150.1289	597, 599	150.1580	573	150.1680-7	593
140.5271	491	150.1150	658	150.1290	596, 599, 665	150.1581	573	150.1680-8	593
140.5272	491	150.1151	658	150.1291	596, 599, 665	150.1582	573	150.1680-9	593
140.5273	491	150.1152	658	150.1292	596, 600, 665	150.1583	573	150.1690	488

item	page	item	page	item	page	item	page	item	page
150.1695	593	150.1980	511	150.2070	592	150.2172	587	150.3006	584
150.1695-1	593	150.1981	511	150.2070-1	592	150.2173	587	150.3010	471
150.1695-2	593	150.1984	511	150.2070-28	592	150.2174	587	150.3012	583
150.1695-3	593	150.1985	511	150.2070-29	592	150.2175	587	150.3015	583
150.1695-4	593	150.1986	511	150.2070-30	592	150.2176	587	150.3016	583
150.1695-5	593	150.1987	511	150.2071	508	150.2177	587	150.3017	584
150.1695-6	593	150.1990	489	150.2072	508	150.2178	587	150.3018	583
150.1702	519	150.1995	489, 634	150.2073	508	150.2179	587	150.3021	525
150.1703	520, 659	150.2000	509	150.2074	508	150.2180	588	150.3022	591
150.1704	520, 659	150.2001	508, 509, 647	150.2075	536	150.2188	587	150.3023	591
150.1705	520, 659	150.2002	507, 508, 509	150.2076	536	150.2189	587	150.3024	591
150.1706	520, 659	150.2003	507, 508, 647	150.2077	536	150.2195	517	150.3025	582
150.1707	520, 659	150.2004	507, 508, 509	150.2078	536	150.2196	517	150.3026	584
150.1708	520	150.2005	507, 508, 509	150.2079	536	150.2197	517	150.3027	591
150.1709	520	150.2006	507, 508, 509	150.2080	536	150.2198	517	150.3028	585
150.1710	520	150.2007	508, 509, 647	150.2081	536	150.2200	646	150.3029	585
150.1711	519, 659	150.2008	507, 508, 509	150.2082	536	150.2201	646	150.3030	581
150.1719	519	150.2009	507, 508, 509	150.2083	536	150.2202	646	150.3031	581
150.1720	519	150.2010	507, 508, 509	150.2084	536	150.2203	646	150.3032	581
150.1725	519	150.2011	507, 508, 509	150.2085	536	150.2204	646	150.3034	582
150.1730	519	150.2012	507, 508, 509	150.2086	536	150.2205	646	150.3040	590
150.1735	519	150.2013	507, 508, 509	150.2087	536	150.2210	505	150.3045	471
150.1740	519	150.2015	507	150.2089	536	150.2211	505, 510, 512	150.3050	582
150.1750	520	150.2016	507, 508, 509	150.2090	539	150.2212	505, 510	150.3051	582
150.1800	528	150.2017	507, 508, 509	150.2092	535, 536	150.2213	505, 510	150.3052	582
150.1801	528	150.2018	508, 509	150.2093	535, 536	150.2215	505, 510	150.3053	582
150.1802	528	150.2019	508, 509	150.2096	539	150.2217	505	150.3054	582
150.1803	528	150.2021	495, 499	150.2098	543	150.2218	505	150.3055	582
150.1804	528	150.2022	499	150.2099	508	150.2219	505	150.3056	582
150.1805	528	150.2023	489, 495	150.2100	578, 580	150.2220	505, 510	150.3058	582
150.1900	592	150.2024	495, 501	150.2101	580	150.2221	505, 510	150.3059	582
150.1901	592	150.2025	501	150.2116	512	150.2222	505	150.3060	582
150.1902	592	150.2027	495, 499	150.2118	512	150.2223	505	150.3061	582
150.1903	592	150.2029	495, 500	150.2121	578, 581	150.2224	505	150.3062	582
150.1904	592	150.2030	508, 510	150.2122	580	150.2250	535	150.3063	582
150.1905	592	150.2031	495, 500	150.2123	580	150.2251	535	150.3064	582
150.1906	592	150.2032	499	150.2124	580	150.2252	535	150.3065	582
150.1907	592	150.2033	499	150.2125	580	150.2253	535	150.3066	582
150.1910	592	150.2034	508	150.2126	580	150.2254	535	150.3066-1	582
150.1911	592	150.2035	508	150.2127	580	150.2255	535	150.3067	582
150.1912	592	150.2036	508, 509	150.2128	580	150.2256	535	150.3068	582
150.1913	592	150.2037	508, 509	150.2129	578, 581	150.2257	535	150.3069	582
150.1914	592	150.2038	508, 509	150.2130	536	150.2258	535	150.3080	471
150.1915	592	150.2039	509	150.2131	536	150.2259	535	150.3085	471
150.1916	591, 592	150.2040	595	150.2132	536	150.2260	535	150.3090	578
150.1917	591, 592	150.2042	647	150.2133	536	150.2261	535	150.3091	578
150.1918	591, 592	150.2044	592	150.2134	536	150.2262	535	150.3092	578
150.1930	591	150.2048	508	150.2135	536	150.2263	535	150.3095	594
150.1931	591	150.2051	508	150.2136	536	150.2264	535	150.3096	594
150.1932	591	150.2052	508	150.2137	536	150.2265	535	150.3100	586, 664
150.1933	591	150.2053	508	150.2138	536	150.2266	535	150.3101	586, 664
150.1941	591	150.2054	508	150.2140	510	150.2267	535	150.3102	586, 664
150.1942	591	150.2056	507	150.2150	507, 510	150.2268	535	150.3103	586, 664
150.1943	591	150.2057	507, 510	150.2151	507, 510	150.2269	535	150.3104	586, 664
150.1944	591	150.2058	517	150.2153	510	150.2270	535	150.3105	586, 664
150.1945	591	150.2059	508	150.2154	510	150.2271	535	150.3106	586, 664
150.1946	591	150.2062	508	150.2155	509, 510	150.2272	535	150.3107	586, 664
150.1947	591	150.2064	508	150.2160	587	150.2273	535	150.3108	586, 664
150.1948	591	150.2065	591	150.2161	587	150.2274	535	150.3109	586, 664
150.1949	591	150.2065-1	592	150.2162	587	150.2275	535	150.3110	586, 664
150.1950	591	150.2065-2	592	150.2163	587	150.2301	517	150.3111	586, 664
150.1951	591	150.2065-3	592	150.2164	587	150.2302	517	150.3112	586, 664
150.1952	591	150.2065-4	592	150.2165	587	150.2303	517	150.3115	585
150.1953	591	150.2065-5	592	150.2166	587	150.3000	584	150.3116	585
150.1954	591	150.2065-6	592	150.2167	587	150.3001	584	150.3117	585
150.1960	591	150.2066	592	150.2168	587	150.3002	584	150.3118	585
150.1961	591	150.2067	592	150.2169	587	150.3003	584	150.3119	585
150.1962	591	150.2068	592	150.2170	587	150.3004	584	150.3120	585
150.1963	591	150.2069	508	150.2171	587	150.3005	584	150.3125	586

item	page	item	page	item	page	item	page	item	page
150.3130	585	150.5052	567	150.6043	569, 572, 573	150.9293	545, 664	150.9393	541
150.3135	587	150.5053	567	150.6050	569	150.9294	545, 664	150.9394	541
150.3136	587	150.5054	567	150.6051	569	150.9295	545, 664	150.9395	541
150.3137	587	150.5055	567	150.6052	569	150.9296	545, 664	150.9396	541
150.3138	587	150.5056	567	150.6053	569	150.9297	545, 664	150.9400	524
150.3140	587	150.5060	566, 567	150.6054	569	150.9298	545, 664	150.9401	524, 525
150.3141	587	150.5061	567	150.6055	569	150.9299	545, 664	150.9402	524, 525
150.3142	587	150.5062	567	150.6060	569	150.9300	541	150.9403	524, 525
150.3143	587	150.5063	567	150.6061	569	150.9305	542	150.9404	524
150.3144	587	150.5064	567	150.6062	569, 570	150.9310	544	150.9405	524
150.3145	587	150.5065	567	150.6063	569	150.9313	541, 543, 545	150.9410	525
150.3146	587	150.5066	567	150.6064	570, 572, 573	150.9314	543, 544	150.9414	524
150.3147	587	150.5067	567	150.6065	570, 572, 573	150.9315	546	150.9416	524
150.3148	587	150.5068	567	150.6070	570	150.9317	541, 543	150.9417	524
150.3149	587	150.5069	567	150.6071	570	150.9319	545, 663	150.9418	524
150.3150	584	150.5070	566, 567	150.6073	570	150.9320	544	150.9419	524
150.3152	584	150.5071	567	150.6080	570	150.9321	544, 545, 663	150.9421	524
150.4200	614	150.5072	567	150.6081	570, 572, 573	150.9322	544, 545, 663	150.9422	524
150.4205	612	150.5073	567	150.6082	570, 572, 573	150.9323	544, 545, 663	150.9424	524
150.4208	612	150.5074	567	150.6083	570, 572, 573	150.9324	544, 545, 663	150.9427	524
150.4210	612	150.5075	567	150.6090	570	150.9325	544, 545, 663	150.9434	524
150.4215	612	150.5076	567	150.6091	570	150.9326	544, 545, 663	150.9435	524
150.4219	616	150.5077	567	150.6092	570	150.9327	544, 545, 663	150.9436	524
150.4220	614	150.5078	567	150.6093	570	150.9329	544, 545, 663	150.9437	524
150.4225	613	150.5079	567	150.6094	570	150.9330	544, 545, 663	150.9438	524
150.4230	613	150.5080	566, 567	150.6095	570	150.9331	544, 545, 663	150.9439	524
150.4235	614	150.5081	567	150.6100	570	150.9332	544, 545, 663	150.9440	524
150.4240	614	150.5082	567	150.6101	570	150.9333	544, 545, 663	150.9441	524
150.4250	613	150.5083	567	150.6102	570, 571	150.9334	544, 545, 663	150.9442	524
150.4255	615	150.5084	567	150.6103	570	150.9335	544, 545, 663	150.9445	524
150.4260	615	150.5085	567	150.6104	571, 572, 573	150.9336	544, 545, 663	150.9450	524
150.4265	616	150.5086	567	150.6105	571, 572, 573	150.9337	545, 663	150.9458	524
150.4266	616	150.5087	567	150.6110	571	150.9338	544, 545, 663	150.9459	524
150.4267	616	150.5088	567	150.6111	571	150.9339	544, 545, 663	150.9460	524
150.4268	616	150.5090	566, 568	150.6113	571	150.9340	544, 545	150.9461	524
150.4269	616	150.5091	568	150.6120	571	150.9341	545, 663	150.9465	524
150.4270	615	150.5092	568	150.6121	571	150.9342	544, 545, 663	150.9466	524
150.4275	615	150.5093	568	150.6122	571, 572, 573	150.9343	544, 545, 663	150.9467	524
150.4280	613	150.5094	568	150.6123	571, 572	150.9344	544, 545, 663	150.9468	524
150.5000	566	150.5095	568	150.6130	571	150.9345	544, 545, 663	150.9473	524
150.5017	567	150.5096	568	150.6131	571, 572, 573	150.9346	545, 663	150.9474	524
150.5018	567	150.5097	566	150.6133	571, 573	150.9347	544, 545, 663	150.9475	524
150.5019	567	150.5098	566	150.6140	571	150.9348	544, 545, 663	150.9481	524
150.5020	566	150.6000	568	150.6141	571, 573	150.9349	544, 545, 663	150.9482	524
150.5021	566	150.6001	568, 572	150.6142	571, 573	150.9350	545	150.9483	524
150.5022	566	150.6002	568, 572	150.6143	571, 573	150.9351	545, 663	150.9485	525
150.5023	566	150.6003	568, 572	150.6144	571, 573	150.9355	547	150.9490	525
150.5024	566	150.6004	568, 572	150.6145	571, 573	150.9357	546	150.9491	525
150.5025	566	150.6005	568, 572	150.6150	572	150.9358	664	150.9492	525
150.5026	566	150.6010	568	150.6155	572	150.9359	546	150.9510	473
150.5030	566	150.6011	568, 572, 573	150.6160	573	150.9360	546	150.9520	474
150.5031	566	150.6012	568, 572, 573	150.9260	546	150.9361	591	150.9530	474
150.5032	566	150.6013	568, 572, 573	150.9261	546	150.9364	541, 542	150.9540	474
150.5033	566	150.6014	568, 572, 573	150.9262	546	150.9365	541, 544, 663	150.9570	474
150.5034	566	150.6015	568, 572, 573	150.9263	546	150.9366	544, 663	150.9571	474
150.5035	566	150.6020	568	150.9264	546	150.9367	544, 663	150.9572	474
150.5036	566	150.6021	568	150.9265	546	150.9368	544, 663	150.9573	474
150.5040	566	150.6022	568	150.9267	546	150.9375	543, 662	150.9574	474
150.5041	566	150.6023	568	150.9268	546	150.9376	543, 662	150.9575	474
150.5042	566	150.6024	568	150.9269	546	150.9377	541, 543	150.9578	475
150.5043	566	150.6025	568, 572, 573	150.9270	546	150.9378	541, 543	150.9579	475
150.5044	566	150.6030	569	150.9280	547	150.9379	543	150.9610	474
150.5045	566	150.6031	569	150.9281	547	150.9384	541, 548	150.9611	475
150.5046	566	150.6032	569, 572, 573	150.9282	547	150.9385	548	150.9613	475
150.5047	566	150.6033	569	150.9283	547	150.9386	548	150.9614	475
150.5048	566	150.6034	569, 572, 573	150.9284	547	150.9387	548	150.9615	475
150.5049	566	150.6035	569	150.9290	545, 664	150.9390	541	150.9616	475
150.5050	566, 567	150.6040	569	150.9291	545, 664	150.9391	541	150.9620	475
150.5051	567	150.6041	569, 572, 573	150.9292	545, 664	150.9392	541	150.9630	474

item	page	item	page	item	page	item	page	item	page
150.9631	475	155.5003	543	160.0372	628	310.0110	478, 578	332.1010	496
150.9632	475	156.0330	456	160.0375	627	310.0150	473	332.1011	496
150.9634	475	156.0340	652	160.0385	627	331.0620	497, 637, 645	332.1012	496
150.9635	475	156.0342	652	160.0395	627	331.0621	497, 637, 645	332.1013	496
150.9636	475	156.0344	652	160.0397	627	331.0622	497, 637, 645	332.1014	496
150.9638	475	156.0346	652	160.0398	627	331.0623	497, 637, 645	332.1015	496
150.9640	475	156.0348	652	160.0700	518	331.0624	497, 637, 645	332.1016	496
151.2023	646	156.0350	652	160.0701	630	331.0625	497, 637, 645	332.1017	496
151.2073	533	156.0352	652	160.0702	630	331.0626	497, 637, 645	332.1018	496
151.2470	555	156.0354	652	160.0703	630	331.0627	497, 637, 645	332.1019	496
152.1005	557	156.0415	540, 652	160.0705	518	331.0628	497, 637, 645	332.1020	496
152.1006	557	156.0416	540, 652	160.0708	518	331.0680	501	332.1021	496
152.1007	557	157.0950	506, 510	160.0709	518	331.0681	501	332.1022	496, 637, 645
152.1008	557	157.0960	506, 510	160.0710	518	331.0682	501	332.1023	496
152.1010	557	160.0001	546	160.0713	518	331.0683	501	332.1024	496
152.1012	557	160.0010	631	160.0715	518	331.1101	495	332.1025	496
152.1014	557	160.0011	631	160.0716	629	331.1102	495	332.1026	496, 637, 645
152.1015	565	160.0015	631	160.0720	630	331.1103	495	332.1027	496
152.1020	565	160.0055	504, 624	160.0730	630	331.1104	495	332.1063	637, 645
152.1021	565	160.0080	581, 631	160.0731	630	331.1105	495	333.0017	496
152.1022	565	160.0145	631	160.0732	630	331.1106	495	333.0018	496
152.1023	565	160.0175	466	160.0735	518	331.1107	495	333.0019	496
152.1024	565	160.0176	466	160.0738	518	331.1108	495	333.0020	496
152.1025	565	160.0177	466	161.0950	506	331.1109	495	333.0021	496
152.1026	565	160.0178	466	161.0960	506	331.1110	495	333.0022	496
152.1027	565	160.0179	466	162.0271	456	331.1111	495	333.0023	496
152.1028	565	160.0180	466	2		331.1112	496	333.0024	496
152.1030	565	160.0181	466	201.2300	505	331.1113	496	333.0025	496
152.1031	565	160.0182	466	201.2301	505	331.1114	496	333.0026	496
152.1032	565	160.0183	466	201.2302	505	331.1115	496	333.0027	496
152.1033	565	160.0184	466	201.2315	561	331.1116	496	333.0028	496
152.1034	565	160.0185	466	201.2316	561	331.1117	496	333.0029	496
152.1035	565	160.0186	466	201.2320	505, 510, 646	331.1118	496	333.0031	496
152.1036	565	160.0187	466	201.2321	498, 506, 510	331.1119	496	333.0032	496
152.1037	565	160.0188	466	201.2322	498, 506	331.1120	496	333.0033	496
152.1038	565	160.0189	466	201.2325	498, 506, 578	331.1121	496	333.0034	496
152.1040	565	160.0190	466	201.2326	498, 506	331.1122	496	333.0035	496
152.1050	574	160.0200	622	222.2060	647	331.1123	496	333.0036	496
152.1055	574	160.0201	622	3		331.1124	496	333.0037	496
152.1056	464, 574	160.0206	621	300.0525	510	331.1125	496	333.0038	496
152.1057	574	160.0207	622	300.0530	645	331.1126	496	333.0039	496
152.1058	574	160.0224	622	300.0535	510	332.0106	454	333.0041	496
152.1060	564	160.0225	623	300.0540	510	332.0108	454	333.0042	496
152.1061	564	160.0226	623	300.0550	503	332.0110	454	333.0043	496
152.1062	564	160.0227	624	300.0560	511	332.0206	454	333.0044	496
152.1063	564	160.0228	623	300.0565	511	332.0208	454	333.0045	496
152.1064	564	160.0229	623	300.0570	505, 510	332.0210	454	333.0046	496
152.1065	564	160.0250	504	300.0600	561	332.0308	454	333.0047	496
152.1080	565	160.0305	629	300.0611	561	332.0310	454	333.0048	496
152.1090	577	160.0315	627	300.0612	561	332.0408	455	333.0049	496
152.1095	565	160.0327	630	300.0613	561	332.0508	455	333.0051	496
152.1096	565	160.0328	630	300.0614	578	332.0608	455	333.0052	496
152.1097	565	160.0329	630	300.0615	578	332.0708	455	333.0053	496
152.1098	565	160.0330	628	300.0616	578	332.0808	455	333.0054	496
152.1100	557	160.0331	628	300.0617	578	332.0908	455	333.0055	496
152.1101	557	160.0350	628	300.0618	578	332.0938	454	333.0056	496
152.1170	575	160.0351	628	300.0625	511	332.0950	455	333.0057	496
152.1171	575	160.0352	628	300.0630	577	332.0951	455	333.0058	496
152.1172	575	160.0354	628	300.0631	577	332.0953	455	337.2010	578
152.1173	575	160.0356	628	300.0632	577	332.1000	496	4	
152.1174	575	160.0358	628	300.0633	577	332.1001	496	450.0000	645
152.1175	575	160.0359	628	300.0634	577	332.1002	496	450.0001	645
152.1176	575	160.0360	628	300.0635	577	332.1003	496	450.0002	645
152.1177	575	160.0365	628	300.0636	577	332.1004	496	450.0003	645
152.1178	575	160.0366	629	300.0637	577	332.1005	496	450.0004	645
152.1180	575	160.0367	629	300.0638	577	332.1006	496	450.0025	653
152.1181	575	160.0368	629	300.0639	577	332.1007	496	450.0030	540, 653
152.1182	575	160.0370	628	301.0090	573	332.1008	496	450.0031	540, 653
155.5002	541, 543	160.0371	628	301.0095	566, 573	332.1009	496	450.0035	644

item	page	item	page	item	page	item	page	item	page
450.0036	644	450.0207	639	455.0052	662	500.7515	561	500.8700	526
450.0037	644	450.0208	639	455.0055	662	500.7520	559	500.8701	526
450.0038	644	450.0210	638	455.0100	648	500.7525	558	500.8703	526
450.0040	644	450.0300	647	5		500.7530	558	500.8704	527
450.0050	650	450.0305	647	500.1010	551	500.7535	558	500.8705	526
450.0051	650	450.0310	646	500.1015	551	500.7540	557, 558	500.8706	526
450.0052	650	450.0311	646	500.1037	514	500.7545	558	500.8710	527
450.0060	650	450.0315	648	500.1038	540	500.7550	558	500.8711	527
450.0061	650	450.0320	646	500.1039	540	500.7555	558	500.8712	527
450.0062	650	450.0350	647	500.1370	446	500.7560	558	503.4010	647
450.0070	649	450.0351	647	500.1371	446	500.8000	626	503.4102	643
450.0071	649	450.0352	647	500.1372	446	500.8020	626	503.4103	643
450.0075	649	450.0360	646	500.1373	446	500.8030	626	503.4104	643
450.0076	649	450.0361	646	500.1374	446	500.8035	625	503.4105	643
450.0080	532, 654	450.0362	646	500.1375	446	500.8040	626	503.4106	643
450.0082	532, 654	450.0365	647	500.1376	446	500.8045	626	503.4107	643
450.0083	532, 654	450.0404	640	500.1377	446	500.8050	625	503.4108	643
450.0084	532, 654	450.0405	640	500.1378	446	500.8055	625	503.4109	643
450.0085	650	450.0407	640	500.1379	446	500.8060	625	503.42055	643
450.0087	532, 654	450.0420	661	500.1380	446	500.8065	625	503.4206	643
450.0088	532, 654	450.0422	644, 661	500.4315	584	500.8070	624	503.4207	643
450.0090	652	450.0423	644, 661	500.5010	656	500.8075	624	503.4208	643
450.0091	652	450.0425	644, 661	500.5011	656	500.8080	625	503.4209	643
450.0092	652	450.0426	644, 661	500.5012	656	500.8085	625	503.4210	643
450.0093	652	450.0427	644, 661	500.5013	656	500.8090	626	503.4211	643
450.0094	652	450.0428	644, 661	500.5017	656	500.8095	624	503.4212	643
450.0106	639	450.0429	644, 661	500.5019	656	500.8096	624	503.4213	643
450.0107	639	450.0430	644, 661	500.5022	656	500.8097	624	503.4214	643
450.0110	640	450.0431	644, 661	500.5024	656	500.8098	624	503.4215	643
450.0120	651	450.0433	644, 661	500.5027	656	500.8099	624	503.4216	643
450.0121	651	450.0434	644, 661	500.5032	656	500.8100	486, 621	503.4217	643
450.0122	651	450.0435	644, 661	500.5606	656	500.8503	526	503.4218	643
450.0123	651	450.0436	644, 661	500.7021	602	500.8506	526	503.4219	643
450.0124	651	450.0437	644, 661	500.7024	602	500.8507	526	503.4221	643
450.0126	651	450.0438	644, 661	500.7039	602	500.8509	526	503.4222	643
450.0127	651	450.0471	661	500.7060	562	500.8510	526	503.4224	643
450.0150	641	450.0472	661	500.7061	561	500.8511	526	503.4227	643
450.0151	641	450.0473	661	500.7062	562	500.8512	526	503.4228	643, 646
450.0152	641	450.0474	661	500.7063	562	500.8513	526	503.4229	643
450.0160	641	450.0475	661	500.7106	602	500.8514	526	503.4230	643
450.0165	640	450.0481	661	500.7107	602	500.8515	526	503.4270	643
450.0166	640	450.0482	661	500.7108	602	500.8530	472	503.4601	643
450.0167	641	450.0483	661	500.7109	602	500.8531	472	503.4606	643
450.0168	641	450.0484	661	500.7110	602	500.8532	472	503.4607	643
450.0170	641	450.0491	661	500.7111	602	500.8533	472	503.4608	643
450.0176	641	450.0492	661	500.7125	602	500.8534	472	503.4609	643
450.0180	638	450.0493	661	500.7180	602	500.8536	472	503.4610	643
450.0181	638	450.0494	661	500.7300	563	500.8550	472	503.4611	643
450.0182	638	450.0960	621	500.7301	563, 564	500.8551	472	503.4612	643
450.0183	638	455.0000	657	500.7302	563, 564	500.8554	472, 473	503.4613	643
450.0184	638	455.0001	657, 658	500.7303	563, 564	500.8556	472, 473	503.4614	643
450.0185	638	455.0002	657, 658	500.7304	563, 564	500.8557	472, 473	503.4615	643
450.0186	638	455.0003	657, 658	500.7305	563	500.8558	472, 473	503.4616	643
450.0187	638	455.0004	657, 658	500.7306	563	500.8559	472	503.4617	643
450.0190	638	455.0005	574, 657	500.7310	562	500.8560	472, 473	503.4618	643
450.0191	638	455.0010	654	500.7311	563	500.8562	473	503.4619	643
450.0192	638	455.0011	654	500.7312	563	500.8570	473	503.4622	643
450.0193	638	455.0012	655	500.7313	563	500.8571	472, 473	503.4624	643
450.0194	638	455.0013	655	500.7314	563	500.8572	472, 473	503.4627	643
450.0195	638	455.0015	654	500.7315	563	500.8573	473	503.4628	643
450.0196	638	455.0020	662	500.7316	563	500.8574	472, 473	503.4629	643
450.0197	638	455.0021	662	500.7320	563	500.8575	473	503.4630	643
450.0198	638	455.0030	656	500.7330	562	500.8576	473	503.4643	643
450.0200	640	455.0031	656, 657	500.7335	564	500.8579	472, 473	503.4644	643
450.0201	639	455.0032	656, 657	500.7340	563	500.8592	472, 473	503.4681	643
450.0202	639	455.0033	656, 657	500.7341	563	500.8595	473	503.4683	643
450.0203	640	455.0034	656, 657	500.7342	563	500.8620	526	503.4684	643
450.0204	639	455.0050	662	500.7343	563	500.8621	526	503.4685	643
450.0205	639	455.0051	662	500.7510	559	500.8622	526	503.4686	643

item	page	item	page	item	page	item	page	item	page
503.4687	643	515.1192	494, 637	515.2134	636	517.0185	642	517.1165	564
503.4688	643	515.1193	494, 637	515.2136	636	517.0190	642	517.1170	559
503.4689	643	515.1194	494, 637	515.2138	491, 636	517.0195	642	517.1175	559
503.4808	564	515.1205	454	515.2141	636	517.0196	642	517.1180	574
503.4809	564	515.1243	501	515.3000	460	517.0252	512	517.1181	574
503.4810	564	515.1244	501	515.3025	501	517.0253	512	517.1182	574
503.4812	564	515.1285	501	515.3035	453	517.0254	512	517.1183	574
503.8135	647	515.1300	456	515.3050	459	517.0255	512	517.1184	574
514.1133	494	515.1304	456	515.3055	459	517.0257	512	517.1185	574
515.0000	660	515.1306	456	515.3075	578	517.0258	512	517.1186	574
515.0001	660	515.1307	456	515.3095	453	517.0260	512	517.1187	574
515.0002	660	515.1309	456	515.3100	475, 522	517.0261	512	517.1422	564
515.0003	660	515.1374	659	515.3101	475	517.0263	512	517.1423	564
515.0004	660	515.1461	494, 637	515.3110	523	517.0264	512	517.9024	642
515.0005	660	515.1462	494, 637	515.3115	523	517.0265	512	517.9027	642
515.0006	660	515.1463	494, 637	515.3120	524	517.0266	512	517.9030	642
515.0010	661	515.1464	494, 637	515.3125	522, 523	517.0267	512	517.9032	642
515.0012	660, 661	515.1465	494, 637	515.3130	522, 523	517.0268	512	517.9036	642
515.0013	660, 661	515.1466	494, 637	515.3135	522, 523	517.0269	512	517.9041	642
515.0016	660, 661	515.1467	494, 637	515.3140	522, 523	517.0270	510, 512	517.9046	642
515.0017	660, 661	515.1468	494, 637	515.3145	523	517.0522	642	517.9050	642
515.0018	660, 661	515.1469	494, 637	515.3150	523	517.0524	642	517.9055	642
515.0019	660, 661	515.1750	638	515.3155	523	517.0527	642	517.9060	642
515.0305	494	515.1755	638	515.3160	523	517.0530	642	517.9065	642
515.0306	494	515.1760	638	515.3165	523	517.0532	642	517.9070	642
515.0900	556, 660	515.1765	638	515.3170	524	517.0536	642	517.9075	642
515.0910	660	515.1770	638	515.3175	524	517.0538	642	517.9080	642
515.0911	660	515.1775	638	515.3183	528	517.0540	642	517.9085	642
515.0913	660	515.1780	638	515.3549	453	517.0541	642	517.9090	642
515.0914	660	515.1785	638	515.3570	487	517.0542	642	517.9095	642
515.0915	660	515.1790	638	515.3575	487	517.0546	642	517.9100	642
515.0916	660	515.1795	638	515.3580	487	517.0548	642	517.9105	642
515.0917	660	515.1801	660	515.3810	453	517.0550	642	518.0300	510, 513
515.0919	660	515.1850	639	515.3840	453	517.0555	642	518.0307	513
515.0920	660	515.1855	639	515.3900	550	517.0560	642	518.0308	513
515.0921	660	515.1860	639	516.0363	646	517.0565	642	518.0309	513
515.0922	660	515.1865	639	516.1150	491, 635	517.0570	642	518.0310	513
515.0923	660	515.1870	639	516.1151	491, 635, 636	517.0575	642	518.0311	513
515.0924	660	515.1875	639	516.1155	491, 636	517.0580	642	518.0321	513
515.0950	556	515.1880	639	516.1156	491, 636	517.0585	642	518.0350	513
515.1003	510	515.1885	639	516.1195	655	517.0590	642	518.0360	513
515.1005	492	515.1890	639	516.1196	655	517.0595	642	518.0370	513
515.1006	492	515.1891	638	516.1197	655	517.0596	642	518.0378	513
515.1040	493	515.1892	638	516.1198	655	517.0924	642	518.0379	513
515.1060	493	515.1893	638	516.1442	495	517.0927	642	518.0380	513
515.1061	493	515.1894	638	516.1490	635	517.0930	642	518.0381	513
515.1062	493	515.1895	638	516.1493	635	517.0932	642	518.0382	513
515.1063	493	515.1896	638	516.1495	635	517.0936	642	518.0383	513
515.1064	493	515.1897	638	516.1500	560	517.0941	642	518.0384	513
515.1065	493	515.1898	638	516.1501	560, 561	517.0946	642	518.0387	513
515.1070	493	515.1950	502	516.1502	560, 561	517.0950	642	518.0389	513
515.1072	492, 493	515.1960	502	516.3545	635	517.0955	642	518.0800	648
515.1073	492	515.2015	492, 495	516.3550	635	517.0960	642	518.0822	648
515.1075	492, 493	515.2017	492, 495	516.3700	491, 636	517.0965	642	518.0823	648
515.1076	492, 493	515.2019	492, 495	516.3705	491, 636	517.0970	642	518.0824	648
515.1077	492	515.2021	492, 495	517.0124	642	517.0975	642	518.0825	648
515.1133	659	515.2022	492, 495	517.0127	642	517.0980	642	518.0826	648
515.1160	533	515.2040	493	517.0130	642	517.0985	642	518.0827	648
515.1161	533	515.2041	493	517.0132	642	517.0990	642	518.0828	648
515.1162	533	515.2042	493	517.0136	642	517.0995	642	518.0831	490, 634
515.1163	533	515.2043	493	517.0141	642	517.0996	642	518.0832	490, 634
515.1164	533	515.2045	493	517.0146	642	517.1130	559	518.0833	490, 634
515.1165	533	515.2046	493	517.0150	642	517.1131	559	518.0834	490, 634
515.1166	533	515.2047	493	517.0155	642	517.1132	559	518.0835	490, 634
515.1167	533	515.2124	636	517.0160	642	517.1133	559	518.0836	490, 634
515.1182	494, 637	515.2127	636	517.0165	642	517.1134	559	518.0837	490, 634
515.1183	494, 637	515.2130	491, 635, 636	517.0170	642	517.1140	561	518.0838	490, 634
515.1184	494, 637	515.2132	491, 635, 636	517.0175	642	517.1141	561	518.0839	490, 634
515.1191	494, 637	515.2133	491, 636	517.0180	642	517.1142	561	518.0840	490, 634

item	page	item	page	item	page	item	page	item	page
518.0850	586	550.1680	604	670.0106	530	700.1236	477	700.1399	537, 654
518.1150	490	550.1681	604	670.0111	530	700.1237	477	700.1400	535
518.1151	490	550.1683	604	670.0131	649	700.1238	477	700.1400-1	535, 538, 650
518.1152	490	550.1685	603	670.0141	649	700.1239	477	700.1400-2	535
518.1155	490, 634	550.1690	603	670.0151	649	700.1240	476	700.1400-3	535
518.1156	490, 634	6		670.0161	650	700.1241	477	700.1400-4	535, 644
518.1157	490, 634	610.3350	473	670.0171	650	700.1242	477	700.1400-5	535
518.1158	490, 634	610.3351	473	670.0181	650	700.1243	477	700.1400-7	535
518.1159	490, 634	610.3399	473	670.0191	528	700.1244	477	700.1410	534
518.1161	490, 634	620.3101	604	670.0201	528	700.1250	536	700.1411	464, 532, 534
518.1162	490, 634	620.3102	604	670.0211	585	700.1260	536	700.1412	534
550.1000	607	620.3103	604	670.0221	586	700.1300	531	700.1415	464, 574
550.1001	477, 607	620.5201	586	670.0231	557	700.1311	531	700.1421	464
550.1002	608, 609	620.5202	586	670.0232	557	700.1312	531	700.1423	464
550.1003	607	620.5203	586	670.0233	557	700.1313	531	700.1424	464
550.1004	607	620.5301	586	670.0241	557	700.1314	531	700.1425	464
550.1007	609	620.5302	586	7		700.1315	531	700.1428	464
550.1009	609	660.0101	588	700.1100	532	700.1316	531	700.1430	464
550.1010	608	660.0102	588	700.1100-10	532	700.1348	537, 654	700.1435	534
550.1019	609	660.0103	588	700.1100-11	532	700.1349	537, 654	700.1436	534
550.1021	609	660.0104	588	700.1100-2	532	700.1350	537, 654	700.1437	534
550.1022	477, 607	660.0105	588	700.1100-3	532	700.1351	537, 654	700.1438	534
550.1023	477, 607	660.0106	588	700.1100-4	532	700.1352	537, 654	700.1439	534
550.1025	608	660.0107	588	700.1100-5	532	700.1353	537, 654	700.1440	534
550.1026	608	660.0108	588	700.1100-6	532	700.1354	537, 654	700.1450	532
550.1027	608	660.0109	588	700.1100-7	532	700.1355	537, 654	700.1455	532
550.1030	609	660.0111	588	700.1100-8	532	700.1356	537, 654	700.1460	533
550.1032	608	660.0112	588	700.1100-9	532	700.1357	537, 654	700.1650	538
550.1035	549	660.0113	588	700.1120	531	700.1358	537, 654	700.1651	538
550.1040	610	660.0114	588	700.1130	531	700.1359	537, 654	700.1652	538
550.1041	610	660.0115	588	700.1150	533	700.1360	537, 654	700.1653	538
550.1042	610	660.0116	588	700.1151	533	700.1361	537, 654	700.1654	538
550.1045	610	660.0117	588	700.1152	533	700.1362	537, 654	700.1655	538
550.1046	610	660.0118	588	700.1160	534	700.1363	537, 654	700.1656	538
550.1047	610	660.0119	588	700.1161	533	700.1364	537, 654	700.1657	538
550.1048	610	660.0121	588	700.1162	533	700.1365	537, 654	700.1658	538
550.1049	610	660.0122	588	700.1163	533	700.1366	537, 654	700.1700	537
550.1070	610	660.0123	588	700.1170	533	700.1367	537, 654	700.1701	537
550.1071	610	660.0124	588	700.1180	533	700.1368	537, 654	700.1702	537
550.1072	610	660.0125	588	700.1181	533	700.1369	537, 654	700.1703	537
550.1073	610	660.0126	588	700.1182	533	700.1370	537, 654	700.1704	537
550.1074	610	660.0127	588	700.1183	533	700.1371	537, 654	700.1706	537
550.1102	609	660.0128	588	700.1184	533	700.1372	537, 654	700.1707	537
550.1106	610	670.0001	534	700.1185	477	700.1373	537, 654	700.1708	537
550.1120	610	670.0013	644	700.1190	477, 604	700.1374	537, 654	700.1709	537
550.1135	610	670.0014	644	700.1191	476	700.1375	537, 654	700.1710	537
550.1138	611	670.0015	644	700.1192	476	700.1376	537, 654	700.1711	537
550.1140	610	670.0021	525	700.1193	476	700.1377	537, 654	700.1712	537
550.1141	610	670.0031	526	700.1195	604	700.1378	537, 654	700.1713	537
550.1142	610	670.0041	525	700.1196	603	700.1379	537, 654	700.1714	537
550.1160	611	670.0051	526	700.1197	604	700.1380	537, 654	700.1715	537
550.1165	590, 611	670.0060	531, 648	700.1200	531	700.1381	537, 654	700.1716	537
550.1185	611	670.0061	531, 648	700.1201	531	700.1382	537, 654	700.1717	537
550.1205	611	670.0062	531, 648	700.1202	531	700.1383	537, 654	700.1718	537
550.1290	591	670.0063	531, 648	700.1203	531	700.1384	537, 654	700.1719	537
550.1301	610	670.0071	648	700.1204	531	700.1385	537, 654	700.1720	537
550.1503	594	670.0080	532	700.1205	531	700.1386	537, 654	700.1721	537
550.1504	593	670.0081	532	700.1206	531	700.1387	537, 654	700.1722	537
550.1601	618	670.0082	532	700.1207	531	700.1388	537, 654	700.1723	537
550.1602	618	670.0091	530	700.1208	531, 535	700.1389	537, 654	700.1724	537
550.1603	618	670.0092	530	700.1209	531, 535	700.1390	537, 654	700.1725	537
550.1604	618	670.0093	530	700.1210	531	700.1391	537, 654	700.1726	537
550.1610	617	670.0094	530	700.1221	531	700.1392	537, 654	700.1727	537
550.1620	617	670.0095	530	700.1222	531	700.1393	537, 654	700.1728	537
550.1630	617	670.0101	530	700.1223	531	700.1394	537, 654	700.1729	537
550.1640	617	670.0102	530	700.1232	477	700.1395	537, 654	700.1730	537
550.1650	618	670.0103	530	700.1233	477	700.1396	537, 654	700.1731	537
550.1660	618	670.0104	530	700.1234	477	700.1397	537, 654	700.1732	537
550.1665	618	670.0105	530	700.1235	477	700.1398	537, 654	700.1733	537

item	page	item	page	item	page	item	page	item	page
700.1740	534	911.1352	519	911.3990	560	911.8176	540, 653	913.3865	552, 553
700.1750	538	911.1353	519	911.3991	560	911.8177	540, 653	913.3866	552, 553
700.1751	538	911.1354	519	911.4306	555	911.8178	540, 653	913.3867	552, 553
700.1754	535	911.1355	519	911.4327	655	911.8179	540, 653	913.3868	552
700.1755	535	911.1356	519, 556	911.4450	555	911.8180	499, 635	913.3869	552, 553
700.1756	535	911.1358	519	911.4451	556	911.8190	449, 467	913.3870	553
700.1757	535	911.1359	519, 556	911.4452	556	911.8191	448, 449	913.3880	554
700.1758	535	911.1387	476	911.4453	556	911.8192	448, 449	913.3881	553
700.1759	535	911.1395	555	911.4454	556	911.8193	448, 449	913.3882	553
700.1790	538, 651	911.1470	555, 655	911.4455	556	911.8194	449	913.3883	553
700.1792	538, 651	911.1471	554, 655	911.4456	556	911.8195	449	913.3884	553
700.1793	538, 651	911.1472	554, 655	911.4500	556	911.8410	540, 653	913.3885	553
700.5001	543, 663	911.1473	554, 655	911.5165	555	911.8411	539, 540, 653	913.3886	553
700.5002	543, 663	911.1474	554, 655	911.5166	555	911.8412	539, 540, 653	913.3887	553
700.5610	530	911.1475	554, 655	911.5167	555	911.8413	539, 540, 653	913.3888	553
700.5615	530	911.1476	554, 655	911.5168	555	911.8414	539, 540, 653	913.3889	553
700.5620	530	911.1477	554, 655	911.5169	555	911.8415	539, 653	913.3890	553
700.5625	530	911.1480	554, 655	911.5170	555	913.1210	656	914.0003	619
700.5630	531	911.1494	555	911.5171	555	913.1211	656	914.0004	619
8		911.1624-300	556	911.5172	555	913.1212	656	914.0005	619
800.0015	504, 620	911.1630	555	911.5173	555	913.1213	656	914.0006	619
800.0020	620	911.1685	556	911.5174	555	913.1214	656	914.0008	619
800.0021	620	911.1701	556	911.5175	555	913.1215	656	914.0080	619
800.0030	620	911.1702	556	911.5176	555	913.1216	656	914.0081	619
800.0031	620	911.1703	556	911.5177	555	913.1240	553	914.0082	619
800.0150	497	911.1704	556	911.5178	555	913.1249	553, 554	914.0083	619
800.0151	497	911.1705	556	911.8100	539	913.1250	553	914.0084	619
800.0156	497	911.1706	556	911.8101	539	913.1252	553	914.0085	619
800.0190	497	911.1707	556	911.8102	539	913.1253	553	914.0086	619
800.0960	488, 621	911.1708	556	911.8103	539	913.1255	553	914.0087	619
800.1010	541	911.1709	556	911.8104	539	913.1270	494	914.0088	619
800.1020	578	911.1925	556	911.8105	451	913.1271	494	914.0089	619
800.1030	510	911.1937	556	911.8106	450, 451, 467	913.1272	494	914.0090	619
800.1040	467	911.1938	556	911.8107	450, 451	913.1273	494	914.0091	619
815.1195	495	911.1939	556	911.8108	450, 451, 467	913.1280	494	914.0092	619
850.1075	610	911.1940	556	911.8109	451, 467	913.1281	494	914.0093	619
890.0002	620	911.1941	556	911.8110	450, 451, 467	913.1282	494	914.0094	619
9		911.1942	556	911.8111	451, 502	913.1290	495	914.0095	619
907.2125	578	911.1960	556	911.8115	502	913.1291	495	914.0096	619
907.2152	502	911.1961	547, 556	911.8116	449	913.1292	495	914.0097	619
907.2170	483	911.1963	541, 547, 556	911.8117	449	913.1293	495	914.0098	619
907.2185	600	911.1970	556	911.8118	452	913.1294	495	914.0099	619
907.2186	600	911.1972	556	911.8119	451	913.1295	495	918.0607	560
907.2187	600	911.1974	556	911.8120	450	913.1408	552, 554	918.1205	560
907.2188	600	911.1980	556	911.8121	450	913.1410	552, 554	918.1206	560
907.2200	483	911.1993	556	911.8122	449, 450	913.1412	552, 554	918.1207	560
907.2201	483	911.1994	556	911.8123	449, 450	913.1413	552	918.1271	586, 664
907.2202	483	911.3101	554, 655	911.8124	450	913.1450	552	918.1291	489
907.2203	483	911.3102	554, 655	911.8125	449, 450	913.1460	554	918.1292	489
907.2204	483	911.3103	554, 655	911.8126	478	913.1461	553, 554	918.1293	489
907.2205	483	911.3104	554, 655	911.8130	502	913.1462	553, 554	918.1297	489
907.2206	483	911.3105	554, 655	911.8131	502	913.1463	553, 554	918.1390	560
911.0954	556	911.3106	554, 655	911.8132	495, 502	913.1465	553, 554	918.1391	560
911.1126	541	911.3107	554, 655	911.8133	502	913.1466	553, 554	918.1392	560
911.1127	541	911.3111	554	911.8134	502	913.1467	553, 554	918.1406	541
911.1128	541	911.3112	554	911.8138	451, 467	913.1468	553, 554	918.1407	541
911.1172	541	911.3113	554	911.8139	451, 467	913.1469	553	918.1408	541
911.1306	510	911.3114	554	911.8140	451	913.1470	552, 554	918.3700	489
911.1307	510	911.3115	554	911.8141	451	913.1473	552, 554	918.3701	489
911.1308	510	911.3116	554	911.8142	451	913.1474	554	918.3802	560
911.1314	556	911.3117	554	911.8143	499	913.1475	554	918.3804	560
911.1317	556	911.3804	560	911.8144	499	913.3850	553	918.3805	560
911.1319	556	911.3805	560	911.8145	499	913.3855	553, 578	918.3806	541, 560
911.1322	556	911.3867	505	911.8146	495, 499	913.3858	553	918.3807	541
911.1327-240	556	911.3868	505	911.8147	499, 635	913.3860	552, 553	918.3885	541
911.1345	556	911.3874	505	911.8150	489, 495	913.3861	552, 553	918.3886	541
911.1348	556	911.3884	505	911.8155	489	913.3862	552, 553	918.3890	561
911.1350	519	911.3885	505	911.8170	499	913.3863	552, 553	918.3895	560
911.1351	519	911.3886	505	911.8175	540, 653	913.3864	552, 553	918.3898	541

2



Werkzeuge-Maschinen GmbH

Seligenstädter Grund 10 - 12

Industriegebiet Ost 1

D- 63150 Heusenstamm



DEUTSCHLAND

Tel.: +49 6104 4974-0

Fax: +49 6104 4974-11

e-mail: kstools@kstools.de

URL: www.kstools.de