

**Numerics**

2 split-second stop clocks ..... 744  
 3-axis clamping ..... 489  
 3-D articulated arms ..... 618  
 3-D articulated measuring stands ..... 617-618  
 3-D edge finders ..... 406  
 3-flute countersink ..... 76-79  
 3-jaw clamping chuck ..... 422-423, 429  
 3-jaw grinding chuck ..... 430  
 3-jaw lathe chuck ..... 424-430  
 3-jaw lathe chuck accessory ..... 426  
 5-axis clamping ..... 489, 491-494  
 5-axis clamping devices, selection overview ..... 476  
 5-axis clamping sample applications ..... 490  
 5-axis clamping, selection overview ..... 476

**A**

ABC pipe wrench ..... 1038  
 Abrasive band, woven ..... 1293  
 Abrasive bonded fabric ..... 1293  
 Abrasive cap holder ..... 1293  
 Abrasive caps ..... 1293  
 Abrasive cloths ..... 1292  
 Abrasive flap discs ..... 1301-1303  
 Abrasive flap discs selection aid ..... 1301  
 Abrasive linen cloth ..... 1291-1292  
 Abrasive linen selection aid ..... 1291  
 Abrasive paper ..... 1291  
 Abrasive pencils, boron nitride ..... 1162  
 Abrasive roll magazine ..... 1292  
 Abrasive rollers ..... 1291  
 Abrasive rollers selection overview ..... 1291  
 Absorber cabinet ..... 783  
 A-Cut blade system ..... 281  
 Acute angle ..... 661  
 Adapter ..... 935, 942, 954, 957-958  
 Adapting sleeves ..... 358, 362, 373, 388  
 Adaptors for taps ..... 144  
 Addition stop clocks ..... 743  
 Adhesive grinding discs ..... 1301  
 Adhesive tape ..... 1186-1187  
 Adhesive tapes, anti-friction ..... 818  
 Adjustable adapters ..... 388  
 Adjustable pliers ..... 1031  
 Adjustable reamers ..... 88-89  
 Adjustable square (bevel) ..... 661  
 Adjustable wrench ..... 1031  
 Adjustable wrenches ..... 925  
 Adjustment devices, zero ..... 407-408  
 AF open-end wrenches ..... 916-917  
 Air diffusers ..... 1267  
 Air hose reel ..... 1250  
 Air hoses ..... 1277  
 Aligning keys ..... 459  
 Alignment system, Laser- ..... 669  
 Allen key ..... 966-972  
 Allen key Bits ..... 989-990, 998  
 Allen key screwdriver ..... 966-972  
 Allen key, torque ..... 1009  
 Allen keys ..... 966-968, 970-971  
 All-purpose shears ..... 1085-1086  
 All-round safety specs ..... 1113  
 All-steel engineering screw clamps ..... 904  
 All-steel screw clamps (speed clamps) ..... 903  
 Aluminium cutters selection overview ..... 220  
 Aluminium cutters, solid carbide ..... 230  
 Aluminium single-tooth milling cutters ..... 164  
 Aluminium tool case ..... 762  
 ALUSPEED Solid carbide end mill cutter ..... 230  
 Analysis scales ..... 728  
 Angel grinders, compressed air ..... 1259  
 Angle ..... 659-661  
 Angle bender device ..... 912  
 Angle drill attachment ..... 1196  
 Angle drills ..... 1194  
 Angle grinder, battery-powered ..... 1205, 1226  
 Angle grinder, Electric- ..... 1205-1209

Angle lamps ..... 1148-1149  
 Angle milling heads ..... 99-101  
 Angle plates for mounting ..... 473  
 Angle polishers, Electric- ..... 1208, 1210  
 Angle screwdriver ..... 1225  
 Angle screwdriver attachment ..... 1196  
 Angle setting device, sine ..... 658  
 Angle setting equipment, magnetic ..... 1123  
 Angle standard ..... 642  
 Angle standard, JFA ..... 642  
 Angle standards for setting and calibrating ..... 564  
 Angle, clamping ..... 473  
 Angled boring heads, KOMET ..... 280  
 Angled cutter possible applications ..... 228  
 Angled cutter, solid carbide ..... 228  
 Angled cutters selection overview ..... 224  
 Angled lathe tool ..... 272  
 Angled milling cutter, carbide ..... 193, 196, 209-210  
 Angled probes ..... 590  
 Angled steel cutters, KOMET ..... 278, 280  
 Angular deburring tool ..... 1353  
 Angular face milling heads, carbide ..... 189  
 Angular milling cutter ..... 182  
 Angular milling cutter, carbide ..... 192-193, 195, 197  
 Angular milling cutter, screw-on cutter, carbide ..... 197  
 Anti-friction adhesive tapes ..... 818  
 Antiskid mats ..... 818  
 Anti-slip mats ..... 1340  
 Application of roughing-grinding wheels ..... 1305  
 AQUARADO Organisation system ..... 882-885  
 Arbours ..... 347, 350  
 Arbours for screw-on mill cutter ..... 217  
 Arbours, cutter ..... 358-359, 363-364, 373-374, 377-378  
 ARKANSAS Oil stones ..... 1178-1179  
 ARKANSAS oil stones applications ..... 1178  
 ARKOGRAF engraving devices ..... 1347  
 Armoured pipe tap ..... 122  
 Articulated hook wrenches ..... 965  
 Assembly aid ..... 405  
 Assembly block ..... 404  
 Assembly clamps ..... 905  
 Assembly lever ..... 1004  
 Assembly pliers ..... 404  
 Assembly trolley ..... 810, 836-845  
 Assembly trolley colours ..... 810  
 Assembly wagon ..... 810  
 Assortment case ..... 752  
 Assortment case, small parts ..... 753  
 Assortment containers ..... 752  
 Assortments, tool ..... 846-848  
 ATHERMAL glass ..... 1114  
 Atomizer ..... 1129  
 Automatic centre punch ..... 1068  
 AUTOSTAT Balancers ..... 1310-1319  
 AUTOSTAT spring balancers advantages ..... 1310  
 AUTOSTAT spring balancers comparison ..... 1311  
 AUTOSTAT spring balancers features ..... 1310  
 Axial chuck ..... 368, 393  
 Axial tool holder ..... 435  
 Axial tool holder can be used ..... 435

**B**

Back square ..... 659-660  
 Backwards deburring machine ..... 82  
 Balancer advantages ..... 1310  
 Balancer features ..... 1310  
 Balancer, AUTOSTAT ..... 1310-1319  
 Balancer, AUTOSTAT advantages ..... 1310  
 Balancer, AUTOSTAT features ..... 1310  
 Balancers, AUTOSTAT comparison ..... 1311  
 Ball bearing extractor ..... 907-908  
 Ball bearing puller and extractor set ..... 908  
 Ball bearing race extractor ..... 907  
 Band saw blades ..... 156  
 Band saws, electric ..... 1244  
 Bar magnets ..... 1128  
 Barrel gauges ..... 407

Barrel gripper, transport ..... 1335  
 Barrel pliers, transport ..... 1334-1335  
 Bars ..... 1341, 1346  
 Bars, carbide ..... 272  
 Base plate, vice ..... 900  
 Batteries ..... 1155  
 Battery chargers ..... 1155  
 Battery charging units ..... 1155  
 Battery machines selection aid ..... 1222-1223  
 Battery operated blind rivet nut tool ..... 1097  
 Battery operated load lifting magnets, BUX ..... 1345  
 Battery punches ..... 1093  
 Battery sabre saws ..... 1240  
 Battery-powered lamps ..... 1152  
 Beam compasses ..... 624  
 Belt filing machines, electric ..... 1216  
 Belt sander, compressed air ..... 1263  
 Belt sander, pneumatic ..... 1262  
 Belt sanders, table ..... 1356-1358  
 Belt sanding machines, Electric- ..... 1216, 1218  
 Belt sawing machine, electric ..... 1245  
 Belt sawing machines ..... 1245  
 Belts ..... 1339-1340  
 Bench mounted presses, hydraulic ..... 508  
 Benders ..... 911-913  
 Bit changing system, VDE ..... 987  
 Bit holder ..... 992  
 Bit holder for torque screwdrivers ..... 1005  
 Bit holders ..... 935, 942, 992-993, 997-998  
 Bit sets ..... 992-997  
 Bit sets, screwdriver ..... 997  
 Bit universal holder ..... 992  
 Bits box ..... 992-993  
 Bits for screwdrivers ..... 990-991, 994-996  
 Bits, Allen key ..... 989, 998  
 Bits, hexagonal ..... 989-990, 998  
 Bits, recessed head ..... 990-991, 999  
 Bits, slotted ..... 989, 998  
 Bits, Torx- ..... 991  
 Blade adapter ..... 286  
 Blade system A-Cut ..... 281  
 Blade system, KELL-LOCK ..... 286-289  
 Blades for screwdrivers ..... 989  
 Blind rivet nut hand tools ..... 1097  
 Blind rivet nut kit ..... 1097  
 Blind rivet nut tool, battery operated ..... 1097  
 Blind riveters ..... 1096  
 Blind riveting guns ..... 1096  
 Blind riveting pliers ..... 1095-1096  
 Blind rivets ..... 1097  
 Block wrench ..... 925  
 Blow-off faucet, compressed air ..... 1269  
 Blow-off pistols HERMETIKUS ..... 1269  
 Blow-off pistols, compressed air ..... 1268-1271  
 Blow-off pistols, compressed-air ..... 1268-1271  
 Blowtorches ..... 1100  
 Bodywork chisels ..... 1066  
 Bodywork files ..... 1075  
 Bolt- and wire-cutters ..... 1045  
 Bolt cutter ..... 1044  
 Bolt cutters ..... 1044-1045  
 Bolt end cutters ..... 1044  
 Boots ..... 1120  
 Bore and comparative measuring devices ..... 604-615  
 Boring bar holder ..... 436  
 Boring bars selection overview ..... 301  
 Boring bars, backwards ..... 64  
 Boring bars, KOMET ..... 280, 298  
 Boring heads, facing and ..... 99  
 Boring-out tool, miniature ..... 313-314  
 Boron nitride cup wheels ..... 1163  
 Boron nitride grinding files ..... 1163  
 Boron nitride grinding points ..... 1162  
 Bottle carriage ..... 1098  
 Bow bands ..... 1337  
 Box grippers ..... 1335-1336  
 Boxes ..... 473  
 Boxes for drills ..... 40  
 Bracket for thread-cutting dies ..... 144  
 Bracket sets for thread-cutting die and tap ..... 145

Brackets, clamping ..... 454-457  
 Bradawl ..... 989  
 Brazing fittings ..... 1099-1100  
 Breathing masks ..... 1119-1120  
 Brick trowels ..... 1140  
 Broaching tools ..... 343  
 Brooms ..... 1145-1146  
 Brush ..... 1131, 1140  
 Brushes ..... 1144  
 Brushes, wire ..... 1303-1305  
 Buffing cloths ..... 1291-1292  
 Buffing fabric selection aid ..... 1291  
 Buffing fabric ..... 1293  
 Buffing paper ..... 1291  
 Burrs ..... 1286-1287, 1289-1291  
 Button cells ..... 1155

**C**

Cabinet colours ..... 857, 860  
 Cabinet housing, roller shutter ..... 891-893  
 Cabinet systems equipment ..... 862  
 Cabinet systems selection overview ..... 862  
 Cabinets installation options ..... 777  
 Cabinets, hinged doors ..... 856  
 Cabinets, safety ..... 784  
 Cable channel cutter ..... 1094  
 Cable cutters ..... 1046  
 Cable end sleeves ..... 1059  
 Cable fixer ..... 1060  
 Cable joining tongs ..... 1059  
 Cable knife ..... 1054  
 Cable lugs assortment ..... 1059  
 Cable reels ..... 1248-1249  
 Cable shears ..... 1045-1047  
 Cable sheathing stripper ..... 1055  
 Cable winder ..... 1249  
 Calibration cubes, JFA ..... 643  
 Calibration of testing equipment ..... 512-513  
 Calibration Service ..... 512  
 Calibration services ..... 512  
 Calibration weighing technology ..... 725  
 Callipers ..... 515-531  
 Callipers, divider ..... 623  
 Callipers, slot ..... 524  
 Cam ..... 414  
 Canister, gas ..... 1100  
 Cantilever bracket shelving systems ..... 781  
 Carbide angled cutter ..... 193, 196, 209-211  
 Carbide angled lathe tools ..... 274-275  
 Carbide angular milling cutter ..... 192-193, 195, 197  
 Carbide burrs ..... 1291  
 Carbide centering drills ..... 57  
 Carbide copy and face milling cutter heads ..... 203  
 Carbide copy milling cutter ..... 152  
 Carbide countersinks ..... 82  
 Carbide cutting-off lathe tools ..... 275  
 Carbide die sinking cutter ..... 212-214  
 Carbide disk milling cutter ..... 207-208  
 Carbide drilling and counter-boring ..... 192, 194  
 Carbide end angular milling cutters selection overview ..... 218  
 Carbide end mill cutter ..... 198-199, 201, 227-270  
 Carbide end mill cutters for T slots ..... 227  
 Carbide end mill with internal cooling ..... 250  
 Carbide end mills selection overview ..... 218, 222  
 Carbide facing and profile cutter ..... 204  
 Carbide flat and copy milling heads ..... 200  
 Carbide graving tool ..... 226  
 Carbide grinding pin speed range ..... 1291  
 Carbide grinding pins selection aid ..... 1291  
 Carbide hammer drill bits ..... 68  
 Carbide high-feed ..... 198  
 Carbide hooked lathe chisel ..... 276  
 Carbide indexable insert for milling 184-190, 193f., ..... 196, 198-199, 201-202, 204, 209, 211  
 Carbide indexable inserts for drilling tools ..... 299  
 Carbide indexable inserts for milling ..... 185-190, 193f., 196, 198-199, 201-202, 204, 209, 211

Carbide indexable inserts for sinking cutter ..... 215-216  
 Carbide Indexable inserts for WIDAX-milling tools ..... 205-206  
 Carbide indexable inserts selection aid ..... 294  
 Carbide indexable inserts selection overview ..... 184  
 Carbide indexable inserts, KOMET ..... 295-298  
 Carbide inside lathe tool ..... 275  
 Carbide keyway cutters ..... 227  
 Carbide keyway cutters selection overview ..... 218  
 Carbide lathe tool ..... 274-276  
 Carbide machine reamers ..... 96-98  
 Carbide machine tap ..... 120-121  
 Carbide masonry drill bits ..... 67-68  
 Carbide metal tipped circular saw blades ..... 154  
 Carbide milling cutter 185-204, 207-214, 227-270  
 Carbide milling head ..... 185-189, 202-204  
 Carbide radius copy milling cutter ..... 269  
 Carbide radius cutter ..... 233  
 Carbide roughing cutter ..... 230, 254  
 Carbide screw-on angular cutter ..... 197  
 Carbide shank face milling tool ..... 187  
 Carbide shell end mill ..... 199  
 Carbide side lathe tools ..... 275  
 Carbide single-angle milling cutter ..... 227  
 Carbide stub reamers ..... 98  
 Carbide toolbits ..... 272  
 Carbide torus milling cutters selection overview ..... 222  
 Carbide T-slot milling cutters selection overview ..... 218  
 Carbide twist drills ..... 56-57  
 Carrying boxes ..... 753  
 Carton opener ..... 1080  
 Case for Vernier callipers ..... 516, 521  
 CBN indexable inserts ..... 336  
 Center clamping devices, selection overview ..... 476  
 Centre bit ..... 22-23  
 Centre bits ..... 69  
 Centre clamping device ..... 491-494  
 Centre drills selection overview ..... 12, 18  
 Centre punch ..... 1069  
 Centre punches ..... 1068-1069  
 Centre punches with magnifying glass ..... 1068  
 Centres ..... 410-413  
 Centres for modular face driver bodies ..... 414  
 Centring drills ..... 21  
 Centring drills selection overview ..... 18  
 Centring drills, carbide ..... 57  
 Centring instruments ..... 601-603  
 Centring measuring instruments ..... 601  
 Centring milling cutter, chamfer and ..... 211  
 Centring square ..... 661  
 CERMET indexable inserts for milling ..... 207  
 CERMET indexable inserts for turning ..... 337  
 Chain blocks ..... 1321-1324  
 Chain pipe wrenches ..... 1038  
 Chain quick action closures ..... 1333  
 Chains, sling ..... 1341  
 Chairs ..... 814-817  
 Chamfer and centring milling cutter, hard metal ..... 211  
 Chamfer vernier calliper ..... 648  
 Chamfering drills ..... 69-82  
 Change bit system, VDE ..... 987  
 Chassis ..... 832  
 Check hollow taper shanks ..... 408  
 Check machine spindles ..... 408  
 Check mandrels ..... 407  
 Check tool holding fixtures ..... 408  
 Check vice ..... 478  
 Checking hollow taper shanks ..... 408  
 Checking machine spindles ..... 408  
 Checking tool holding fixtures and machine spindles ..... 408  
 Chemical products ..... 641, 1108-1109, 1185-1187  
 Chemicals protective gloves ..... 1106  
 Chipguards ..... 427  
 Chisel and engraving pin, pneumatic ..... 1263  
 Chisel hammer, compressed air ..... 1263  
 Chisel hand guard ..... 1067  
 Chisel with SDS-max shank ..... 1199  
 Chisels ..... 1065-1066

Chisels with SDS-plus shank ..... 1198  
 Chuck for cutter ..... 360, 366-368, 375, 377, 393  
 Chuck heads ..... 421  
 Chuck, 3-jaw ..... 423  
 Chuck, axial ..... 368, 393  
 Chuck, expansion ..... 368-370, 375-376, 384, ..... 396-397  
 Chuck, milling ..... 359-360, 365-367, 374, ..... 377-378, 391-392  
 Chuck, power-operated ..... 431-433  
 Chuck, shrink-fit ..... 370-371, 385-387, 403  
 Circle cutter, quarter circle, carbide ..... 228-229  
 Circlip pliers ..... 1026-1044, 1053, 1055-1060, ..... 1086, 1095-1096  
 Circlip pliers set ..... 1038  
 Circlip pliers, angled ..... 1039  
 Circuit continuity tester ..... 1251  
 Circular cutter ..... 66  
 Circular metal saw blades ..... 151-154  
 Circular metal saw blades, speeds of cutting ..... 152  
 Circular saw blades, carbide ..... 152  
 Circular saw blades, carbide metal tipped ..... 154  
 Circular saw blades, metal ..... 151-154  
 Circular saws, electric ..... 1243-1244  
 Circular tap wrenches ..... 147  
 Circumferential milling, solid carbide ..... 262  
 Circumferential tape measures ..... 655  
 Clamp holder cut direction ..... 300, 312  
 Clamp holder cutting height ..... 300, 312  
 Clamp holder for turning ..... 300, 312  
 Clamp holder holder length ..... 300, 312  
 Clamp holder insert shape ..... 300, 312  
 Clamp holder shaft type ..... 312  
 Clamp holder shank diameter ..... 312  
 Clamp holders selection overview ..... 301  
 Clamping assemblies ..... 903-905  
 Clamping blocks, magnetic ..... 442  
 Clamping bolt system ..... 471  
 Clamping bolt, up ..... 471  
 Clamping bolts ..... 471  
 Clamping chuck ..... 368, 383, 423-430  
 Clamping chucks accessories ..... 391, 396, 426  
 Clamping chucks for thread cutting ..... 394  
 Clamping chucks selection overview ..... 434  
 Clamping devices ..... 431  
 Clamping devices, centers, selection overview ..... 476  
 Clamping devices, selection overview ..... 476  
 Clamping elements ..... 454-474, 477  
 Clamping force device ..... 469  
 Clamping groove rails ..... 641  
 Clamping holder ..... 448  
 Clamping holders clamping systems ..... 300, 312  
 Clamping holders cutting length ..... 300  
 Clamping holders hank width ..... 300  
 Clamping holders holder shape ..... 300, 312  
 Clamping plates, magnetic ..... 440-442, 444-446  
 Clamping range of clamping chucks ..... 424  
 Clamping range of jaw steps ..... 424  
 Clamping range of lathe chucks ..... 424  
 Clamping screw sets ..... 465  
 Clamping set, tool ..... 489-490  
 Clamping sleeves ..... 346, 418  
 Clamping sleeves for axial chuck ..... 393  
 Clamping strips for magnetic clamping plates ..... 446  
 Clamping system selection overview ..... 476  
 Clamping system zero point, sample applications ..... 499  
 Clamping system, zero point ..... 498-499  
 Clamping system, zero point, sample applications ..... 499  
 Clamping systems selection overview ..... 301  
 Clamping table, angled ..... 473  
 Clamping tools assortment ..... 458  
 Clamping unit ..... 470  
 Clamping Vee block, magnetic ..... 638  
 Clamping vices, multi-function ..... 497  
 Clamping vices, multiple ..... 494-496  
 Clamps ..... 454-457, 459-460  
 Clamps for pole welding ..... 905  
 Claws, magnetic ..... 1345

Cleaner for magnetic clamping plates . . . . .	446	Compressed air chamfering machine . . . . .	1354	Cordless drilling machines selection aid	1222-1223
Cleaner, Schleiffix . . . . .	1179	Compressed air cleaning pistols . . . . .	1267	Cordless hammer drills, cordless . . . . .	1233-1234
Cleaners, high pressure . . . . .	1285	Compressed air cleaning piston . . . . .	1271	Cordless impact screwdriver . . . . .	1234
Cleaning agent and care product 1108-1109, 1185		Compressed air couplings . . . . .	1264-1266	Cordless screwdriver . . . . .	1221-1234
Cleaning agent, care product and 1108-1109, 1185		Compressed air deburring machine . . . . .	1353	Cordless screwdrivers selection aid . . . . .	1222-1223
Cleaning agents, JFA Clean . . . . .	641	Compressed air double nipple . . . . .	1267	Core drilling machine magnet . . . . .	1200
Cleaning Blocks, PORAFLEX . . . . .	1179	Compressed air drill deburring machine . . . . .	1354	Core drilling units . . . . .	1201-1202
Cleaning device, machine tool . . . . .	398	Compressed air eccentric grinder . . . . .	1259	Corn broom . . . . .	1146
Cleaning equipment, steam jet . . . . .	715	Compressed air engraver . . . . .	1349	Corner-rounding concave cutter . . . . .	180
Cleaning equipment, ultrasonic . . . . .	712-714	Compressed air engraving device . . . . .	1348	Counter, stroke . . . . .	747
Cleaning fleece . . . . .	1295-1296	Compressed air grease guns . . . . .	1134	Counter, units . . . . .	748
Cleaning pistols, compressed air . . . . .	1267	Compressed air hand belt sander . . . . .	1263	Counterbores . . . . .	72-74
Cleaning products, ultrasonic . . . . .	716	Compressed air hose connections . . . . .	1264-1267	Counterbores/ Spot facing cutters . . . . .	83
Cleaning rag bin . . . . .	782	Compressed air hose reel . . . . .	1250	Countersink . . . . .	75-82
Cleaning systems, ultrasonic . . . . .	715	Compressed air hoses . . . . .	1277	Countersink , indexable inserts . . . . .	63-64
Cleaning tissues . . . . .	1108	Compressed air multi channel nozzle . . . . .	1271	Countersink bits . . . . .	75
Clearances, V-heads . . . . .	652	Compressed air oilers . . . . .	1277	Countersink combination tools . . . . .	83-86
Clinometer, electronic . . . . .	665, 667	Compressed air recoil hoses . . . . .	1276	Countersinks . . . . .	74, 76
Clinometers, electronic . . . . .	667	Compressed air reductions . . . . .	1267	Counterweight, AUTOSTAT . . . . .	1310-1319
Cloth sanding belts for contact belt sanding machine . . . . .	1356-1358	Compressed air screwdriver . . . . .	1260-1262	Counterweights comparison . . . . .	1311
Cloth tape . . . . .	1186	Compressed air servicing units . . . . .	1278	Counting scales . . . . .	727
Clothing and filing cabinet . . . . .	855	Compressed air spray canister . . . . .	1129	Couplings HERMETIKUS . . . . .	1265
Clothing cabinet colours . . . . .	857, 860	Compressed air spray guns . . . . .	1271	Couplings, compressed air . . . . .	1264-1266
CNC divider attachments . . . . .	450	Compressed air sprayer . . . . .	1129	Couplings, hydraulic . . . . .	506
CNC short drill chuck . . . . .	380	Compressed air spring balances . . . . .	1313	Covers, T-slots . . . . .	463
Coaxial wire strippers . . . . .	1055	Compressed air tools . . . . .	1259, 1263, 1266, 1268-1271, 1278	Crane . . . . .	1320, 1324-1328
Cold light sources . . . . .	702, 705	Compressed air turbine grinder . . . . .	1258	Crane balance . . . . .	721
Cold/heat protective gloves . . . . .	1106	Compressed air vertical grinding machines . . . . .	1259	Crank pin spirit levels . . . . .	666
Collecting tray, hazardous substance . . . . .	783	Compressed air washing gun . . . . .	1271	Crank pump . . . . .	1134
Collection container, recyclable materials . . . . .	782	Compressors . . . . .	1274-1275	Crank shaft V-blocks . . . . .	641
Collet chuck concentricity tolerance . . . . .	392	Computer cabinet colours . . . . .	857, 860	Crankshaft testing equipment . . . . .	595
Collet chuck sets . . . . .	393-395	Computer cabinets . . . . .	849-850	Crash protection . . . . .	780
Collet for milling chuck . . . . .	392-393, 395-396, 421	Concentricity test benches . . . . .	644-647	Crate opener . . . . .	1142
Collet for short-length chuck . . . . .	394	Conduit lights, machine . . . . .	1151	Crate pliers . . . . .	1086
Collet under pressure/tension . . . . .	421	Conical brushes . . . . .	1303	Crate trolley . . . . .	832
Collets, Rubber-Flex . . . . .	355	Conical tools, hollow shaft . . . . .	379-385, 399	Crepe tape . . . . .	1141
Coloured tape and label tape cassettes, DYMO	1159	Conical washers . . . . .	464-465	Crimp assortments for end sleeves . . . . .	1059
Column microscope . . . . .	697	Connecting pieces . . . . .	935, 942, 954, 957-958	Crimping plier . . . . .	1058-1059
Combi clamping fixture . . . . .	469	Connection cable for digital measuring devices . . . . .	684-685	Crimping pliers . . . . .	1057-1059
Combination pliers . . . . .	1026-1027, 1053	Connector pliers . . . . .	1032	Crimping pliers for end sleeves . . . . .	1057, 1059
Combination ratchet wrench . . . . .	920-921	Continued . . . . .	226, 739, 967-968, 971, 990, 1045, 1059, 1301	Crimping pliers for Western connectors . . . . .	1059
Combination ratchet wrenches . . . . .	920-921	Continuity tester . . . . .	1251-1252, 1255	Crimping pliers, with exchange profile magazine . . . . .	1058
Combination wrench . . . . .	917-919	Contour and roughness measuring units . . . . .	737-738	Cross tweezers . . . . .	1051
Combination wrench set . . . . .	918-920	Contour measuring devices Standards . . . . .	738	Cross-cut chisels . . . . .	1065-1066
Combination wrench sets . . . . .	918-920	Contour measuring units . . . . .	738	Cross-head screwdriver VDE . . . . .	987
Combination wrenches . . . . .	917-919	Contour measuring units, measured variables . . . . .	738	Cross-head torque screwdrivers . . . . .	1005
Combined mill arbour accessories . . . . .	389	Contour milling machines . . . . .	1351	Cross-point screwdrivers . . . . .	977-989
Combined shell end mill arbours . . . . .	358-359, 364, 374, 377-378	Control mechanisms for magnetic clamping plates . . . . .	445	Crow-foot wrenches . . . . .	917
Combo thread bit . . . . .	136	Control plates, lapping and . . . . .	638	Crown stop clocks . . . . .	743
Compact balances . . . . .	725-726	Control plates, measuring and . . . . .	639-641	Crushing pliers . . . . .	1053, 1057-1059
Compact clamping device, machine- . . . . .	494	Control square . . . . .	659	Cup wheels . . . . .	1181
Compact machine clamping device . . . . .	494	Control systems . . . . .	683	Cup wheels for tool and pattern making machines . . . . .	1181
Compact marker . . . . .	1156	Converters, high frequency . . . . .	1247	Cup wheels, boron nitride . . . . .	1163
Comparison measuring instrument . . . . .	603	Coolant equipment . . . . .	1137	Cup wheels, diamond . . . . .	1163
Comparison measuring instrument , Universal . . . . .	556	Coolant hoses . . . . .	1137	Cut protective gloves . . . . .	1107
Comparison measuring instrument QUICKCHECK . . . . .	558	Coolant lubricator . . . . .	355	Cut-off discs . . . . .	1305
Comparison measuring instruments for inside and outside measurements . . . . .	556, 558	Coolant transfer pipes . . . . .	399	Cut-off tools . . . . .	286-290
Comparison measuring instruments Pictogramme overview . . . . .	603	Co-ordinate tables . . . . .	451	Cutter bars, carbide . . . . .	313
Compartment lockers colours . . . . .	857, 860	Copper hammers . . . . .	1062	Cutter blade holder, KOMET . . . . .	276
Compartment lockers for valuables . . . . .	851	Copy and face milling cutter heads . . . . .	203	Cutter for aluminium and synthetics, solid carbide . . . . .	229-230
Compartment rail screws . . . . .	880	Copy and face milling cutter heads, carbide . . . . .	203	Cutter for circular cutter . . . . .	66
Compartment rails . . . . .	879	Copy milling cutter, radius, solid carbide . . . . .	242, 269	Cutter for electronics . . . . .	1048-1050
Compartments . . . . .	880	Cordless angle drill . . . . .	1227	Cutter for section rails . . . . .	1093
Compass . . . . .	623	Cordless angle grinder . . . . .	1205	Cutter holder for circular cutter . . . . .	66
Compass saw blades . . . . .	1238-1240, 1242	Cordless angle hand drill . . . . .	1227	Cutter retaining screws . . . . .	390
Compass saws, electric . . . . .	1236-1237	Cordless angle hand drills selection aid . . . . .	1190	Cutter with indexable inserts . . . . .	201
Composite bench stones, RECORD . . . . .	1173	Cordless angle screwdriver . . . . .	1225-1226	Cutter with snap-off blade . . . . .	1079
Composite hammers (mallets), rubber . . . . .	1062	Cordless drill / screwdriver . . . . .	1224-1232	Cutter-, circle . . . . .	66
Composite pipe shears . . . . .	1047	Cordless drill hammer / screwdrivers . . . . .	1232-1233	Cutter, for electronics . . . . .	1048-1050
Composite stones, bench- . . . . .	1173	Cordless drill hammer screwdrivers selection aid . . . . .	1222-1223	Cutter, solid carbide, for aluminium and synthetics . . . . .	229-230
Comprehensive force measuring applications . . . . .	717	Cordless drill hammer/screwdrivers selection aid . . . . .	1222-1223	Cutter, thread . . . . .	114, 127, 354-355
Compressed air angle deburring machines . . . . .	1353	Cordless drill/screwdrivers selection aid . . . . .	1222-1223	Cutters with indexable inserts material groups . . . . .	183
Compressed air angle grinders . . . . .	1259	Cordless drilling machines 1226-1227, 1233-1234		Cutting and welding . . . . .	1098-1099
Compressed air blow-off faucet . . . . .	1269			Cutting device for cable channels . . . . .	1094
Compressed air blow-off pistols . . . . .	1268-1271			Cutting discs for cap saws . . . . .	1309
				Cutting discs selection aid . . . . .	1305

Cutting discs, free hand . . . . . 1305-1309  
 Cutting machine, gasket . . . . . 1095  
 Cutting torch . . . . . 1098-1099  
 Cutting wheel, diamond . . . . . 1169-1170  
 Cutting-disc applications . . . . . 1305  
 Cutting-off blade, KOMET . . . . . 277  
 Cutting-off lathe tools . . . . . 273  
 Cutting-off tools . . . . . 289-290  
 Cycle pliers . . . . . 1032  
 Cylinder gear block and tackles . . . . . 1331  
 Cylinder pressure reducing valve . . . . . 1099  
 Cylinder trolley . . . . . 1098  
 Cylinder, hydraulic . . . . . 501-502, 504  
 Cylindrical setting gauges . . . . . 544  
 Cylindrical spring balances . . . . . 720

**D**

Data holder, tool . . . . . 398  
 Data printers . . . . . 685  
 Deburrer . . . . . 76, 79-80, 1087-1091  
 Deburring and grinding table . . . . . 1355  
 Deburring machine . . . . . 1352  
 Deburring machine, compressed air . . . . . 1353-1354  
 Deburring machine, pipes . . . . . 1353  
 Deburring tool, solid carbide . . . . . 82  
 De-burring tools . . . . . 1087-1091  
 Decorating gun, SATA . . . . . 1272  
 Deep clamping jaws . . . . . 457  
 Deep twist drills . . . . . 39  
 DEGUSSIT honing stones . . . . . 1174-1177  
 DEGUSSIT honing stones applications . . . . . 1174  
 DEGUSSIT Range of grinding files . . . . . 1177  
 Demagnetising equipment . . . . . 447, 977  
 Depth measurement limit stop . . . . . 518  
 Depth measuring bridges . . . . . 595  
 Depth measuring instruments . . . . . 594  
 Depth micrometers . . . . . 546  
 Diagonal cutters . . . . . 1026, 1042-1044, 1050  
 Diagonal cutters for electronics . . . . . 1050  
 Diagonal insulation strippers . . . . . 1052  
 Dial dynamometer . . . . . 720  
 Dial gauge magnetic holder . . . . . 619  
 Dial gauges accessories . . . . . 581  
 Dial gauges Pictogramme overview . . . . . 603  
 Dial gauges Selection overview . . . . . 576, 585  
 Dial gauges, large . . . . . 579  
 Dial gauges, small . . . . . 578  
 Diamond cup wheels . . . . . 1163  
 Diamond cut-off discs . . . . . 1169-1170  
 Diamond dressing tool . . . . . 1164, 1166  
 Diamond files . . . . . 1168-1169  
 Diamond files application tips . . . . . 1168  
 Diamond files recommendation . . . . . 1168  
 Diamond grinding and polishing pastes . . . . . 1296  
 Diamond grinding points . . . . . 1162  
 Diamond grinding wheels . . . . . 1163  
 Diamond hand lapping tools . . . . . 1164  
 Diamond multi-grain hand dressing tool . . . . . 1165  
 Diamond needle files . . . . . 1168-1169  
 Diamond saving dresser . . . . . 1166  
 Diamond Wheel dresser . . . . . 1164-1166  
 DIAPLAT multi-grain wheel dresser . . . . . 1166  
 DIAPOINT Single diamond wheel dresser . . . . . 1164  
 DIARAD dressing tool . . . . . 1166  
 DIAROND Multi-grain dressing tool . . . . . 1165  
 DIATEST Internal gauges . . . . . 608  
 DIATEST measuring frames . . . . . 606  
 Die and mould making products . . . . . 212  
 Die sinking cutter . . . . . 212-214  
 Die sinking cutter, solid carbide . . . . . 212-214  
 Die stock . . . . . 150  
 Die stocks . . . . . 150  
 Digital image processing . . . . . 706-707  
 Digital multimeter . . . . . 1252  
 Digital processing application areas . . . . . 706  
 Dill deburring machine, compressed air . . . . . 1354  
 Dimensions of centres according to DIN 806 . . . . . 410  
 DIN thread sliding member . . . . . 648

DIN tolerance slides . . . . . 648  
 Direct dividing attachments . . . . . 449  
 Disc cutter . . . . . 156-157  
 Disc, grinding . . . . . 1301-1303  
 Discs/washers . . . . . 464  
 Disk milling cutter, indexable inserts . . . . . 207-208  
 Dismantling tool . . . . . 1055  
 Display instruments for ISO tolerances . . . . . 649  
 Display units and force sensors . . . . . 722-724  
 Disposable gloves . . . . . 1107  
 Disposable milling cutters . . . . . 166  
 Disposal cabinet . . . . . 783  
 Distance depth gauges . . . . . 529  
 Distance measuring instrument, laser . . . . . 656  
 Dividers . . . . . 623-624  
 Dividing caulkers . . . . . 1066  
 Dividing heads . . . . . 448-450  
 Dividing heads, CNC . . . . . 450  
 DKD calibration weighing technology . . . . . 725  
 Double equal angle milling cutter . . . . . 160  
 Double nipple, compressed air . . . . . 1267  
 Double open-end wrench sets . . . . . 916-917  
 Double open-end wrenches . . . . . 914-915, 917  
 Double ratchet ring spanner . . . . . 921  
 Double ring spanner sets in inches . . . . . 923  
 Double ring wrench . . . . . 922-924  
 Double ring wrench set . . . . . 923-924  
 Double Vee blocks . . . . . 637  
 Double-action end-cutters . . . . . 1041  
 Double-ended grinders . . . . . 1217  
 Draw-bar, vertical . . . . . 421  
 Draw-bars, vertical . . . . . 421  
 Drawer divider sets . . . . . 789-790, 798  
 Drawer insert material . . . . . 864, 869, 871, 874, 877  
 Drawers for workbenches . . . . . 792  
 Drawers insert assortment . . . . . 867  
 Drawers insert material . . . . . 808, 866, 878-885  
 Dressing tools, diamond . . . . . 1164-1166  
 Dressing tools, grinding wheels . . . . . 1164-1167  
 Drift punches . . . . . 1067-1068  
 Drifts . . . . . 1067  
 Drill and chisel hammer . . . . . 1197  
 Drill and impact hammers . . . . . 1197-1198  
 Drill and impact screwdriver, cordless . . . . . 1232  
 Drill bit, hollow . . . . . 1198  
 Drill chuck 348-351, 357, 360-362, 372-373, 377  
 Drill chuck holders . . . . . 357, 360  
 Drill hammers . . . . . 1197-1198  
 Drill hole plug gauge . . . . . 652  
 Drill selection overview . . . . . 107  
 Drill sets . . . . . 40-42  
 Drill stand, electromagnetic, BUX . . . . . 1199  
 Drill stands . . . . . 40, 1196  
 Drill stands, bench . . . . . 1196  
 Drill units, magnetic . . . . . 1199-1200  
 Drill, , thread . . . . . 102, 104, 106-107  
 Drill, indexable inserts . . . . . 58, 60  
 Drill, machine thread . . . . . 102, 104, 106-107  
 Drill, manual thread . . . . . 102, 104, 106-107  
 Drill, spiral . . . . . 21  
 Drilling and counter-boring, carbide . . . . . 192, 194  
 Drilling bars, indexable inserts, for turning . . . . . 314-321  
 Drilling machine vices . . . . . 479-480  
 Drilling machine vices, selection overview . . . . . 476  
 Drilling screwdriver, cordless . . . . . 1224-1225, 1227-1232  
 Drilling tables . . . . . 474  
 Drilling units, core . . . . . 1201-1202  
 Drills . . . . . 25-27, 29-57, 67-69  
 Drills and hammer drills . . . . . 1195  
 Drills selection aid . . . . . 1190  
 Drills selection overview . . . . . 12, 14, 16, 18, 102, 104, 106  
 Drills, carbide . . . . . 48-57, 67-68  
 Drills, compressed air . . . . . 1256  
 Drills, cordless . . . . . 1223, 1226-1227, 1229, 1233-1234  
 Drills, electric . . . . . 1192-1195, 1197-1198  
 Drills, long series . . . . . 37-38  
 Drills, with stub length . . . . . 47-48

Drive motors, flexible drive shafts . . . . . 1204  
 Drive shafts, flexible . . . . . 1204  
 Driving discs . . . . . 414  
 Driving keys . . . . . 391  
 Driving tools selection overview . . . . . 926  
 Driving tools, sockets and . . . . . 927-959  
 Drop hardness tester . . . . . 708  
 Drum and container pumps . . . . . 1136  
 Drum clamp, transport . . . . . 1334  
 Drum handling devices . . . . . 1334-1335  
 Drum pumps . . . . . 1134-1136  
 Dry vacuum cleaner . . . . . 1279-1283  
 Dual NC spotting drill . . . . . 25  
 Dumper . . . . . 834  
 Dustpans . . . . . 1145  
 Dynamometer, cylindrical . . . . . 719  
 Dynamometer, dial . . . . . 720

**E**

Ear defender case . . . . . 1118  
 Ear defenders . . . . . 1116-1118  
 Ear defenders, case . . . . . 1117  
 Ear plugs . . . . . 1116-1117  
 Ear protectors . . . . . 1117  
 Easy-view boxes for workbenches . . . . . 787-788  
 Easy-view storage bin cabinets . . . . . 768, 770-772  
 Easy-view storage bin table-top frames . . . . . 768  
 Easy-view storage bin wagon . . . . . 770-771  
 Easy-view storage bins . . . . . 765-766  
 Easy-view storage bins - tool carriage . . . . . 769  
 Easy-view storage bins for slotted panels . . . . . 769  
 Easy-view storage bins shelving cabinets . . . . . 767  
 Eccentric sander, electric . . . . . 1214-1215  
 Edge cutter machine . . . . . 1352  
 Edge finder . . . . . 405-406  
 Edge milling machines . . . . . 1351-1352  
 Ejector for components . . . . . 978  
 Elbow pipe wrenches . . . . . 1037  
 Electric chain blocks . . . . . 1321-1323  
 Electric eccentric polishing machine . . . . . 1210  
 Electric engraving devices . . . . . 1347  
 Electric fork lift truck . . . . . 830  
 Electric hot air blower . . . . . 1246  
 Electric immersion saw . . . . . 1244  
 Electric saws . . . . . 1245  
 Electric screwdriver . . . . . 1220  
 Electric shaft stacker . . . . . 830  
 Electric tackler . . . . . 1143  
 Electric threading die . . . . . 150  
 Electric welding hammer . . . . . 1061  
 Electric welding, protective glasses for . . . . . 1113  
 Electric writer . . . . . 1347  
 Electrical force sensor parameters . . . . . 722  
 Electrical generators . . . . . 1247  
 Electrician's chisels . . . . . 1066  
 Electrician's screwdriver . . . . . 986-989  
 Electrician's shears . . . . . 1085  
 Electrician's snips . . . . . 1084  
 Electricians pliers . . . . . 1053  
 Electrode holder . . . . . 1102  
 Electrode welding equipment . . . . . 1101-1102  
 Electrolytic engraver . . . . . 1348  
 Electromagnetic clamping plates . . . . . 445  
 Electronic clinometers . . . . . 667  
 Electronic gauges selection overview . . . . . 585  
 Electronic indicators . . . . . 585  
 Electronic labelling machine, DYMO . . . . . 1157-1158  
 Electronic length measuring probes Basic terms . . . . . 673  
 Electronic length meters . . . . . 670  
 Electronic length probes . . . . . 672, 674-680  
 Electronic length probes application . . . . . 671  
 Electronic length probes function . . . . . 671  
 Electronic level . . . . . 668  
 Electronic side cutters . . . . . 1050  
 Electronic soldering stations . . . . . 1104  
 Electronic tongs . . . . . 1048-1051  
 Electronic torque test workshop unit . . . . . 1025  
 Electronic torque wrench . . . . . 1021

Electronics tweezers ..... 1051-1052  
 Electro-permanent magnet clamping plates ... 444  
 Embossing marker, needle ..... 1350  
 Embossing tapes, DYMO ..... 1159  
 Emergency lamps ..... 1147  
 Emery paper selection aid ..... 1291  
 Emery papers ..... 1291  
 End angular milling cutters selection  
     overview ..... 162, 218  
 End cutting nippers ..... 1041-1043, 1049  
 End cutting nippers for electronics ..... 1049  
 End mill cutter, carbide .. 198-199, 201, 227-270  
 End mill cutter, for indexable inserts ..... 190-192,  
     ..... 194-196, 198-199, 201, 209-211  
 End mill cutter, solid carbide ..... 228-230, 232-270  
 End mill cutter, T slots, carbide ..... 227  
 End mill with internal cooling ..... 250  
 End mill, shell ..... 158-160  
 End mills ..... 163-182  
 End mills selection overview ..... 162, 218, 220,  
     ..... 222, 224  
 Endoscope main focus of use ..... 700  
 Endoscopes ..... 698-702  
 Energy panel add-ons for workbenches ..... 809  
 Energy strips for workbenches ..... 787-788, 801  
 Energy supply units ..... 1248  
 Engine block wrench ..... 925  
 Engineering bar clamps ..... 904  
 Engineering vices ..... 900  
 Engraver, electrolytic ..... 1348  
 Engraving device, compressed air ..... 1348  
 Engraving device, Vibro-Script ..... 1347  
 Engraving devices, electric ..... 1347  
 Engraving pin, pneumatic ..... 1263  
 Engraving stamp ..... 1349  
 Eroding magnetic clamping plates ..... 440  
 Etcher, metal ..... 1156  
 EU Calibration weighing technology ..... 725  
 Evaluation systems ..... 683  
 Exhausting equipment ..... 1285  
 Expansion chuck ..... 368, 370, 383, 396-397  
 Expansion clamping chucks, hydraulic ... 368-369,  
     ..... 375-376, 384, 397  
 Extension bar for ring-end wrench ..... 921  
 Extension cable ..... 1248  
 Extension nuts ..... 464  
 Extensions 346, 928, 936, 943, 950, 955, 957, 959  
 Extensions for drills ..... 346  
 Extensions for reamers ..... 346  
 External micrometer sets ..... 532-533  
 External micrometers ..... 532-537, 539-544  
 External micrometers, thread ..... 542  
 External quick probe, KROEPLIN ..... 598  
 Extraction equipment, welding fumes ..... 1284  
 Extractor for screws ..... 909  
 Extractor for tap ..... 136  
 Extractor, ball bearing ..... 907-908  
 Extractors ..... 905  
 Eye irrigation bottle ..... 1110

**F**

Fabric scissors ..... 1085  
 Face chucks ..... 360, 366-367, 375, 377  
 Face mask ..... 1119  
 Face milling head ..... 185  
 Face milling heads, carbide ..... 185-188  
 Face plates ..... 431  
 Face reamers ..... 94  
 Face safety screen ..... 1118  
 Face torus milling cutter, Solid carbide ... 265-266  
 Face torus milling cutters selection overview .. 224  
 Faces deburring machine ..... 1353  
 Facing and boring heads, LENZ ..... 99  
 Facing and profile cutter, carbide ..... 204  
 Factory and workshop broom ..... 1145  
 Feed cutter ..... 198  
 Feeler gauge bands ..... 650  
 Feeler gauges ..... 649-650

Felt polishing points ..... 1296  
 Female taper measuring instruments, DIATEST 595  
 Fibre grinding discs ..... 1299  
 Fields of application for thread indexable inserts 290  
 File brush ..... 1144  
 File handles ..... 1071, 1075  
 Files ..... 1070-1075  
 Files applications ..... 1074  
 Files cut comparison ..... 1070  
 Files german cut ..... 1070  
 Files selection overview ..... 1070, 1074  
 Files swiss cut ..... 1070  
 Files, diamond ..... 1168-1169  
 Files, diamond, application tips ..... 1168  
 Files, diamond, recommendation ..... 1168  
 FILETOR ..... 649  
 Filing cabinet colours ..... 857, 860  
 Filing cabinets ..... 855-856  
 Filing machine, electric ..... 1216  
 Filing machines, electric ..... 1216  
 Filing vice ..... 896  
 Fillet weld brushes ..... 1144  
 Film thickness gauges ..... 596  
 Films, support sheets ..... 651-652  
 Filter for protective masks ..... 1120  
 Filterpressure reducer ..... 1278  
 Fine dial gauge ..... 581  
 Fine dust filter masks ..... 1119  
 Fine grinding pins ..... 1299  
 Fine sanders, electric ..... 1213  
 Fine scraper ..... 1083  
 First aid box ..... 1109-1110  
 First-aid kit ..... 1109-1110  
 Fitter's hammers ..... 1060-1061  
 Flame arrestors ..... 1099  
 Flange mounting iron ..... 1142  
 Flanges ..... 431  
 Flap wheels ..... 1294-1295  
 Flat and copy milling heads, carbide ... 200, 203  
 Flat blunt-ended files ..... 1073-1074  
 Flat brush ..... 1140  
 Flat chisel ..... 1065-1066  
 Flat files ..... 1071, 1073-1074  
 Flat gauges, limited ..... 567  
 Flat glass plates ..... 564  
 Flat grips, magnetic ..... 1124-1125  
 Flat magnetic grips ..... 1124-1125  
 Flat nozzles, coolant ..... 1138  
 Flat round-nose pliers ..... 1026, 1029-1031  
 Flat scraper ..... 1083-1084  
 Flat square ..... 659-660  
 Flat tension clamp ..... 457  
 Flat-nose pliers ..... 1028, 1030, 1032, 1051  
 Fleece, cleaning ..... 1295-1296  
 Fleece-layered discs ..... 1300  
 Flexible drive shafts ..... 1204  
 Flexible files ..... 1075  
 Floor grid ..... 822  
 Floor grids selection overview ..... 819  
 Floor mats ..... 818-821  
 Floor mats selection overview ..... 819  
 Foam layer ..... 837-838  
 Folding knife, blades ..... 1079  
 Folding pocket magnifier ..... 692  
 Folding rulers ..... 653  
 Foot-operated grease gun, high pressure ... 1134  
 For shell end mill arbours ..... 390  
 Force ..... 901-905  
 Force measurement applications ..... 721  
 Force measuring cells ..... 721-722  
 Force measuring cells, hydraulic ..... 722  
 Force measuring systems, electrical ... 722-724  
 Force measuring systems, hydraulic ..... 722  
 Force sensor parameters ..... 722  
 Force sensor, electrical ..... 722-724  
 Force-measuring systems applications ..... 721  
 Forge hammers ..... 1061-1062, 1064  
 Fork lift hooks ..... 1336  
 Fork ring wrench set ..... 918-920  
 Fork wrench ..... 917-919

Forked clamps ..... 454  
 Fork-lift truck ..... 829  
 Fork-wrench spanner ..... 914-915, 917  
 Fork-wrench spanner sets ..... 916-917  
 Former, thread ..... 106  
 Four-jaw lathe chuck ..... 424-427  
 Four-jaw lathe chuck accessory ..... 426  
 Frame spirit level ..... 666  
 Frames for grinding wheels ..... 886  
 Free hand cutting discs ..... 1306-1309  
 Free-angle indexable insert free angle ... 300, 312  
 Free-running ratchet wrench ..... 963-964  
 Front carrier ..... 414  
 Front glass for welder's protective shield ... 1113  
 Front lamp, LED- ..... 1153  
 Full masks ..... 1120  
 Funnels ..... 1130

**G**

Gantry crane ..... 1326  
 Gap gauges ..... 567  
 Gap gauges, precision pointer ..... 544  
 Gas igniter ..... 1100  
 Gas soldering irons ..... 1103  
 Gasket ring cutting machine ..... 1095  
 Gauge block accessories set ..... 564  
 Gauge block sets ..... 560-561  
 Gauge block tolerance classes ..... 559  
 Gauge blocks ..... 559-564  
 Gauge blocks application areas ..... 559  
 Gauge blocks borderline deviation ..... 559  
 Gauge blocks deviation span ..... 559  
 Gauge blocks properties of materials ..... 559  
 Gauge blocks, long ..... 560, 564  
 Gauge marker ..... 661  
 Gauge sets, thread ..... 570  
 Gauge slides for dial gauges ..... 582  
 Gauge slides for probes ..... 679  
 Gauge slides for TESA dial gauges ..... 583  
 Gauge stop, depth ..... 518  
 Gauges ..... 566-571, 573-575  
 Gauges digital callipers ..... 516-517  
 Gauges, depth ..... 594  
 Gauges, lever ..... 591-594  
 Gauges, limited snap ..... 567  
 Gauges, Morse taper ..... 568  
 Gauges, radius ..... 648  
 Gauges, screw pitch ..... 648  
 Gauges, taper ..... 568  
 Gauges, thread ..... 569, 571, 573-574  
 Generators ..... 1247  
 Gloves ..... 1106-1107  
 Glue gun, electric ..... 1246  
 Goldsmith scissors ..... 1084  
 Graduated spirit level ..... 666  
 Grain pliers (tweezers) ..... 1051-1052  
 Gravers ..... 164  
 Graving tool, solid carbide ..... 226  
 Grease gun filler ..... 1133  
 Grease guns ..... 1131-1133  
 Grease guns, compressed air ..... 1134  
 Grids ..... 822  
 Grids selection overview ..... 819  
 Grinder, rotary ..... 1286-1290  
 Grinder, support- ..... 1359  
 Grinders, compressed air ..... 1259  
 Grinders, electric ..... 1203, 1205-1218  
 Grinders, pneumatic ... 1256-1259, 1262-1263  
 Grinding and deburring table ..... 1355  
 Grinding and polishing paste ..... 1296  
 Grinding belt support ..... 1294  
 Grinding boa, electric ..... 1215  
 Grinding chuck, 3-jaw ..... 430  
 Grinding disc comparison ..... 1301  
 Grinding disc, adhesive ..... 1301  
 Grinding discs for fibre discs ..... 1299  
 Grinding discs selection aid ..... 1301  
 Grinding discs, fibre ..... 1299

Grinding disk cabinets ..... 886  
 Grinding disk shelves ..... 886  
 Grinding fabric ..... 1292  
 Grinding files ..... 1171  
 Grinding files applications ..... 1171, 1174  
 Grinding files selection aid ..... 1171  
 Grinding files, DEGUSSIT ..... 1174, 1176-1177  
 Grinding files, Silicon carbide ..... 1171  
 Grinding gauges, twist drill bits ..... 647  
 Grinding machines, battery ..... 1205  
 Grinding machines, visual ..... 1181  
 Grinding pin areas of use ..... 1296  
 Grinding pin assortments ..... 1298  
 Grinding pins selection aid ..... 1291  
 Grinding pins speed range ..... 1291  
 Grinding pins, polishing ..... 1298  
 Grinding pockets ..... 1294-1295  
 Grinding points ..... 1295-1298  
 Grinding points selection aid ..... 1296  
 Grinding points, diamond ..... 1162  
 Grinding spindle, hand-held ..... 1354  
 Grinding tools ..... 1300  
 Grinding tools, high frequency ..... 1247  
 Grinding wheel cabinets ..... 886  
 Grinding wheel frames ..... 886  
 Grinding wheel store ..... 886  
 Grinding wheels ..... 1301, 1305  
 Grinding wheels for surface grinding machines ..... 1180  
 Grinding wheels for visual grinding machine ..... 1181  
 Grinding wheels, boron nitride ..... 1163  
 Grinding wheels, diamond ..... 1163  
 Grinding wheels, dressing tools ..... 1166-1167  
 Grinding wheels, roughing ..... 1305-1306  
 Grinding wheels, Silicon carbide ..... 1180  
 Grinding wheels, special fused alumina ..... 1180  
 Grinding wheels, standard corundum ..... 1180  
 Grinding wheels, visual ..... 1181  
 Grinding, engraving ..... 164  
 Gripping force tester ..... 407  
 Gripping pliers ..... 1031, 1034-1037, 1049  
 Gripping pliers for electronics ..... 1049  
 Gripping system, parallel ..... 1322  
 Gripping tools ..... 1122  
 Grooving chisels ..... 1066

**H**

Hacksaw ..... 1077  
 Hairnet ..... 1118  
 Half masks ..... 1119-1120  
 Half-round files ..... 1072-1073  
 Halogen lamps ..... 1151  
 Halogen work lamps ..... 1150  
 Hammer drill bits, carbide ..... 68  
 Hammer drills selection aid ..... 1190-1191  
 Hammer drills, electric ..... 1194-1195  
 Hammer ratchet ..... 945  
 Hammer screwdriver sets ..... 959-963  
 Hammer socket ratchet ..... 945  
 Hammer tacker ..... 1143  
 Hammers ..... 1060-1065  
 Hand balance, digital ..... 720  
 Hand brush ..... 1145  
 Hand brush, Machine ..... 1145  
 Hand brushes ..... 1144  
 Hand chuck ..... 427-429  
 Hand circular saws, electric ..... 1243-1244  
 Hand cleaning agent ..... 1108  
 Hand cleaning towels ..... 1108  
 Hand drills, angle ..... 1194  
 Hand drills, single speed ..... 1192-1195  
 Hand drills, two speed ..... 1192-1195  
 Hand hacksaw blades ..... 1076  
 Hand lapping tool ..... 1180  
 Hand lapping tools, diamond ..... 1164  
 Hand metal shears ..... 1087  
 Hand reamers ..... 87-88, 95  
 Hand reamers set ..... 87  
 Hand safety guard, chisel ..... 1067

Hand saw ..... 1077-1078  
 Hand scraper, electric ..... 1218-1219  
 Hand stamping device ..... 1349  
 Hand strap-on magnet ..... 1124  
 Hand stroboscope ..... 746  
 Hand tap ..... 108-113  
 Hand tap selection ..... 102, 104, 106-107  
 Hand tap set ..... 133-134  
 Hand tap sets ..... 108-113  
 Hand-held bar magnets ..... 1126  
 Hand-held lamps ..... 1147-1148  
 Hand-held lamps, battery-powered ..... 1152  
 Hand-held lamps, LED- ..... 1153  
 Hand-held refractometer ..... 698  
 Hand-held staple guns ..... 1142-1143  
 Handle for bits ..... 993  
 Handle for welding and cutting torches ..... 1098  
 Handle trolley ..... 832  
 Handles for engineering hammers ..... 1065  
 Handles for forge hammers ..... 1065  
 Handling aids ..... 1278  
 Handpumps, hydraulic ..... 503  
 Hard cutter, solid carbide ..... 267  
 Hard cutters selection overview ..... 218  
 Hard metal indexable inserts for turning ..... 65, 295-299, 324-336  
 Hardness reference plates ..... 710-711  
 Hardness test devices ..... 709-710  
 Hardness tester ..... 708-710  
 Hardness testers ..... 708  
 Hardness testing files ..... 1074  
 Hazard warning tape ..... 1187  
 Hazardous substance container ..... 784  
 Head band magnifying glasses ..... 696  
 Head shield ..... 1118  
 Heat/cold protective gloves ..... 1106  
 Heavy duty pull-out shelf unit ..... 781  
 Heavy load cabinets with hinged doors ..... 858  
 Heavy-duty combination pliers ..... 1027  
 Heavy-duty cylinder ..... 504  
 Heavy-duty diagonal cutters ..... 1043  
 Heavy-duty drills selection overview ..... 18  
 Heavy-duty face milling head ..... 185  
 Heavy-duty long-handled pincers nickel-plated ..... 1041  
 Heavy-load cabinet colours ..... 857, 860  
 Height adjusting unit, hinged and ..... 899  
 Height adjustment equipment for vices ..... 898-899  
 Height marker ..... 624-627  
 Height measuring device function ..... 628  
 Height measuring device measuring options ..... 630  
 Height measuring device Performance features ..... 628  
 Height measuring devices ..... 634-635  
 Height measuring devices selection overview ..... 628  
 Height measuring devices with calibration certificate ..... 628  
 Height measuring devices, TESA ..... 628-634, 636  
 Height measuring instruments, measuring plates ..... 639-640  
 HERMETIKUS blow-out nozzles ..... 1269-1270  
 Hex keys ..... 966-968, 972  
 Hexagon bits ..... 989-990, 998  
 Hexagon socket gauge slide key ..... 966-972  
 Hexagon socket refitting screwdriver ..... 966-972  
 Hexagon socket torque screwdrivers ..... 1006  
 Hexagonal angled screwdriver ..... 966-967, 969-972  
 Hexagonal bits ..... 989-990, 998  
 Hexagonal magnet holder ..... 1124  
 Hexagonal nuts ..... 463  
 Hexagonal thread-cutting die nut ..... 138  
 Hexagon socket screwdriver, torque ..... 1009  
 High capacity drills ..... 21  
 High frequency grinding ..... 1247  
 High frequency grinding tools ..... 1247  
 High helix reamers ..... 93, 95  
 High Leverage end cutting nippers ..... 1041  
 High performance tapping attachments ..... 127, 355  
 High pressure cleaners ..... 1285  
 High pressure foot-operated grease gun ..... 1134  
 High pressure hoses ..... 506  
 High pressure lubricating compressor ..... 1134

High pressure machine vices ..... 477, 483-488  
 High pressure manual lever grease gun ..... 1132-1133  
 High pressure pipe testing pump ..... 1136  
 High pressure threaded connections ..... 505  
 High speed milling spindle ..... 372, 376  
 High speed milling spindles ..... 372, 376  
 High-feed milling cutter ..... 198  
 High-pressure machine vices, selection overview ..... 476  
 Hinged and height adjusting unit ..... 899  
 Hinged door cabinet colours ..... 857, 860  
 Hinged door cabinets ..... 855-858  
 Hinged pin type face wrench ..... 965  
 HK 3-square files ..... 1072-1073  
 HK carbide twist drills ..... 21, 48-50, 56-57  
 HK internal micrometer screws ..... 546-547, 550-554  
 HK round files ..... 1073  
 HK solid carbide twist drills ..... 21, 48-50  
 HK thread flank gauge slides ..... 542  
 Hoist, suction ..... 1334  
 Hoisting gear, vacuum ..... 1329  
 Holder for NC lathes ..... 435-438  
 Holder for perforated panels ..... 775  
 Holder Solid Clamp ..... 404, 439  
 Holding tools ..... 1122  
 Hole and comparative measuring devices ..... 608, 613-614  
 Hole gauges ..... 652  
 Hole keyway and slotting cutter, solid carbide ..... 237-238  
 Hole keyway cutters selection overview ..... 162, 218, 220  
 Hole-punch, revolving ..... 1091  
 Hollow drill bit ..... 1198  
 Hollow scraper ..... 1083  
 Hollow spindle limit stops ..... 421  
 Hollow taper shank tools ..... 379-385, 399  
 Hollow taper shanks conical tools selection aid ..... 380  
 Honing Introduction ..... 1182  
 Honing stones ..... 1171  
 Honing stones applications ..... 1171, 1174  
 Honing stones selection aid ..... 1171  
 Honing stones, DEGUSSIT ..... 1174-1177  
 Honing stones, RECORD ..... 1173  
 Honing stones, Silicon carbide ..... 1171-1172  
 Honing tools ..... 1182-1184  
 Honing tools Introduction ..... 1182  
 Hook wrench ..... 964-965  
 Hook, round steel ..... 1343  
 Hooked lathe tools ..... 273  
 Hooks for peg boards ..... 775  
 Horizontal length meters ..... 558  
 Horizontal quick action toggle clamps ..... 467  
 Hose adapters ..... 1265-1266  
 Hose clamp ..... 1277  
 Hose clips ..... 1277  
 Hose connections, compressed air ..... 1264-1267  
 Hose connectors ..... 1264-1266  
 Hose hoist, vacuum ..... 1329  
 Hose reel ..... 1250  
 Hoses for gas and oxygen ..... 1099  
 Hoses, air ..... 1277  
 Hoses, coolant ..... 1137-1139  
 Hoses, high pressure ..... 506  
 Hoses, protective ..... 1337  
 Hot glue gun, electric ..... 1246  
 Hot-air pistol, electric ..... 1246  
 HSK Hollow shaft conical tools ..... 379-385, 399  
 HSK Hollow taper shanks conical tools selection aid ..... 380  
 HSS burrs ..... 1288  
 HSS circular metal saw blades, number of teeth ..... 152  
 Hydraulic ..... 1093  
 Hydraulic bench presses ..... 508  
 Hydraulic couplings ..... 506  
 Hydraulic cylinder ..... 501-502, 504  
 Hydraulic handpumps ..... 503  
 Hydraulic jacks ..... 507  
 Hydraulic machine lifter ..... 827  
 Hydraulic pipe bending equipment ..... 912

Hydraulic presses ..... 508  
 Hydraulic pressure cylinder ..... 501-502, 504  
 Hydraulic pull set ..... 503  
 Hydraulic pumps, pneumatic ..... 504  
 Hydraulic pumps, XA series ..... 504  
 Hydraulic tightening kit ..... 503  
 Hydraulic tools ..... 500-508  
 Hydraulic workshop presses ..... 508  
 Hydraulic, hand-held ..... 1093  
 HYDRO expansion chucks accessories ..... 396  
 HYDRO expansion clamping chucks ..... 368, 383-384

**I**

Ideal sheet metal snips ..... 1081-1082  
 Identification, laser ..... 1349  
 Identifying tool ..... 226  
 Igniter, gas ..... 1100  
 Illuminated measuring magnifying glasses ..... 697  
 Image database application areas ..... 706  
 Image editing ..... 706  
 Image library ..... 706-707  
 Image process application areas ..... 706  
 Image processing software ..... 707  
 Immersion pumps, electric ..... 1137  
 Impact drill screwdriver, cordless ..... 1232  
 Impact hammers, drilling and ..... 1197-1198  
 Impact hardness test set ..... 708  
 Impact protected dial gauges ..... 579  
 Impact screwdriver ..... 998-999  
 Impact screwdriver, cordless ..... 1234  
 Impact screwdriver, electric ..... 1235  
 Impact screwdrivers, compressed air ..... 1261-1262  
 Impact socket sets ..... 927-931, 933, 935-938,  
 ..... 941-942, 944-948, 952-954, 956  
 Inbus torque screwdrivers ..... 1006  
 Indexable cutting inserts application ..... 62, 323  
 Indexable cutting inserts geometries ..... 62  
 Indexable cutting inserts geometry ..... 323  
 Indexable insert backward drilling bars ..... 64  
 Indexable insert countersinks ..... 63-64  
 Indexable insert cutting design variants ..... 184, 322  
 Indexable insert drill ..... 58, 60  
 Indexable insert drilling bars for turning ..... 312,  
 ..... 314-321  
 Indexable insert drills with internal cooling ..... 58  
 Indexable insert hard metal properties ..... 323  
 Indexable insert tool holders for turning ..... 300,  
 ..... 302-311, 314-321  
 Indexable insert undersize drills ..... 63  
 Indexable inserts ..... 59, 61-62, 323, 336  
 Indexable inserts application ..... 62, 323  
 Indexable inserts board types ..... 184, 322  
 Indexable inserts carbide types ..... 183, 323  
 Indexable inserts clamping screw ..... 59  
 Indexable inserts cut direction ..... 184, 322  
 Indexable inserts cutter angle ..... 322  
 Indexable inserts cutting length ..... 184, 322  
 Indexable inserts for backward drilling bars ..... 65  
 Indexable inserts for drilling tools ..... 299  
 Indexable inserts for lathe tools ..... 323  
 Indexable inserts for milling ..... 184  
 Indexable inserts for milling, CERMET ..... 207  
 Indexable inserts for turning ..... 290, 322  
 Indexable inserts for turning areas of  
 application ..... 290  
 Indexable inserts for turning, carbide ..... 335  
 Indexable inserts for turning, CERMET ..... 337  
 Indexable inserts for Walter tools ..... 65  
 Indexable inserts free angle ..... 184, 322  
 Indexable inserts geometries ..... 62  
 Indexable inserts geometry ..... 323  
 Indexable inserts hard metal properties ..... 323  
 Indexable inserts insert shape ..... 184, 322  
 Indexable inserts insert thickness ..... 184, 322  
 Indexable inserts screw-on milling cutter ..... 202  
 Indexable inserts selection overview ..... 184  
 Indexable inserts standard designation ..... 322  
 Indexable inserts tolerance classes ..... 184, 322

Indexable inserts, carbide, for turning, ORION ..... 65,  
 295-..... 299, 322, 324-336  
 Indexable inserts, carbide, for WIDAX milling tools .....  
 205-..... 206  
 Indexable inserts, carbide, KOMET ..... 295-298  
 Indexable inserts, shell-type cutter ..... 199  
 Indicator, electronic ..... 585-590  
 INDIGA bench stones ..... 1173  
 INDIGA Oil stones ..... 1173-1174  
 INDIGA oil stones applications ..... 1173  
 INDIGA oil stones selection aid ..... 1171  
 Industrial balances, electronic ..... 727-728  
 Industrial brush ..... 1140  
 Industrial electric screwdrivers ..... 1220  
 Industrial scissors ..... 1085  
 Industrial spray bottles ..... 1129  
 Industrial vacuum cleaner ..... 1279-1283  
 Infrared temperature measuring devices ..... 735  
 Inscription tool ..... 226  
 Insert adaptor for lathe tool ..... 277  
 Insert assortment, drawers ..... 867  
 Insert material, drawers ..... 808, 864, 866, 869,  
 ..... 871, 874, 877-885  
 Insert sets for tool cabinets ..... 808, 864, 866,  
 ..... 869, 871, 874, 877  
 Insert sleeve accessories ..... 388  
 Inserts for drawers ..... 801-802  
 Inserts for machine screws ..... 959-963  
 Inserts, quick-change ..... 353  
 Inside lathe tools ..... 273  
 Inside precision measuring instruments,  
 DIATEST ..... 604-606  
 Inside precision measuring instruments,  
 SUBITO ..... 609-615  
 Inside probes ..... 590  
 Inside recessing boring heads, KOMET ..... 280  
 Inside thread cutters ..... 279  
 Inside thread lathe tool ..... 274  
 INSIDER deburring machine ..... 1355  
 INSIDER inside deburring machine ..... 1355  
 Inspection devices ..... 1121-1122  
 Inspection instruments, interior ..... 698-702  
 Inspection lamp ..... 1121-1122  
 Inspection mirror ..... 1121-1122  
 Inspection mirrors ..... 1121  
 Inspection set ..... 1122  
 Installation protective gloves ..... 1107  
 Installation straps ..... 774  
 Installed screw-type micrometers ..... 543-544  
 Insulated tweezers ..... 1052  
 Insulating tape, electric ..... 1186  
 INTERAPID inside measuring instruments ..... 601  
 Interchangeable tips for cut-off tools ..... 323  
 Interfaces for digital measuring equipment ..... 681  
 Interfaces for length measuring probe ..... 682-683  
 Interior inspection devices main focus of use ..... 700  
 Interior inspection instruments ..... 698-702  
 Internal micrometers, ETALON ..... 554-555  
 Internal micrometers, IMICRO ..... 548-550  
 Internal micrometers, TRI-O-BOR, TESA ..... 555  
 Internal quick measuring devices ..... 553  
 Internal quick probe, KROEPLIN ..... 599-600  
 Intersection set square ..... 660-661  
 ISO tolerance table book ..... 649  
 ISO tolerances, display device for ..... 649

**J**

Jack, hydraulic ..... 507  
 Japanese spatula ..... 1140  
 Jaws ..... 457, 460, 481  
 Jaws for vices ..... 901  
 Jaws selection overview ..... 434  
 Jeweller's pliers ..... 1030  
 Jig saw arc ..... 1078  
 Jointed coolant hoses ..... 1138-1139  
 Jointed coolant hoses system combinations ..... 1139  
 Jointed hoses, coolant ..... 1137-1139  
 Jointed measuring stands, 3-D ..... 617  
 Jointed stands, measuring ..... 617

**K**

KELL-LOCK Blade system ..... 286-289  
 Key cabinets ..... 764  
 Key files ..... 1072  
 Key fobs ..... 764  
 Key for shell end mill arbours ..... 390  
 Key rings ..... 764  
 Key, angled ..... 972-974, 985-986  
 Keyboard interface ..... 687  
 Keyhole saws ..... 1094-1095  
 Keyhole shears ..... 1081  
 Keyway cutter ..... 181  
 Keyway cutter, carbide ..... 227  
 Keyway cutter, hole, solid carbide ..... 244-246  
 Keyway cutter, slotting, hole, solid carbide ..... 243  
 Keyway cutters selection overview ..... 162, 218  
 Knife ..... 1054, 1078-1081  
 Knife-edge ruler ..... 658, 661  
 Knives with snap-off blade ..... 1079  
 Knit protective gloves ..... 1107  
 Knives with snap-off blade ..... 1079  
 Knurl ..... 340  
 Knurl cutter ..... 341-342  
 Knurl cutting tools ..... 340-342  
 Knurling tools ..... 338-339  
 KOMET carbide indexable inserts ..... 295-298  
 KOMET indexable inserts selection aid ..... 294  
 KOMET steel boring bars ..... 278-280  
 KOMET tool holder ..... 297  
 KROEPLIN Quick calliper for inside  
 measurements ..... 598-600

**L**

Label panels for compartments ..... 880  
 Labelling cassettes, DYMO ..... 1159  
 Labelling machine ..... 1349-1350  
 Labelling machines, electronic, DYMO ..... 1157-1158  
 Labels for compartments ..... 880  
 Ladders ..... 823-824  
 Lamellar blocks for magnetic clamping plates ..... 446  
 Laminate bars for magnetic clamping plates ..... 446  
 Lamps ..... 1146-1153  
 Lapping and control plates ..... 638  
 Lapping tools ..... 1180  
 Lapping tools, hand, diamond ..... 1164  
 Large-scale stop watches ..... 745  
 Laser distance measuring instruments ..... 656  
 Laser marking ..... 1349  
 Laser spirit levels ..... 665  
 Lashing straps ..... 1339-1340  
 Lathe and cut-off tools ..... 281-286, 299  
 Lathe chuck ..... 422-430  
 Lathe chuck accessory ..... 426  
 Lathe chuck jaw recessing attachment ..... 430  
 Lathe chuck key ..... 428  
 Lathe chuck short taper flange ..... 431  
 Lathe chucks accessory ..... 426  
 Lathe files ..... 1074  
 Lathe tool ..... 272-274  
 Lathe tool gauges, thread ..... 648  
 Lathe tool, carbide ..... 274-276  
 Lathe tools ..... 65, 271-299, 302-311, 313-321,  
 ..... 324-337  
 Lathe tools, miniature ..... 313  
 Layer thickness measuring devices ..... 729-731  
 Layer thickness measuring devices selection  
 overview ..... 729, 731  
 Lead-sealing pliers ..... 1038  
 Leaning ladder ..... 824  
 Leather protective gloves ..... 1106  
 LED front lamps ..... 1153  
 LED Hand-held lamps ..... 1153  
 LED lamps ..... 1149, 1152  
 LED light sources ..... 702  
 Length measuring probe application ..... 671  
 Length measuring probe function ..... 671  
 Length measuring probes Basic terms ..... 673

Length measuring unit measuring options . . . . . 630  
 Length meter . . . . . 748  
 Length meters . . . . . 558  
 Length meters, electronic . . . . . 670  
 Length meters, TESA MICRO-HITE,  
     vertical . . . . . 630-634  
 Length probes . . . . . 672  
 Length probes, electronic . . . . . 636, 674-680  
 Lens systems . . . . . 692  
 Letter punch sets . . . . . 1156  
 Level, electronic . . . . . 668  
 Levelling shoes . . . . . 475  
 Lever action bar clamps . . . . . 903  
 Lever bar . . . . . 1142  
 Lever gauges, digital . . . . . 594  
 Lever gauges, electronic . . . . . 679-680  
 Lever gauges, INTERAPID . . . . . 593  
 Lever indicators . . . . . 591  
 Lever sheet metal shears . . . . . 1087  
 Lever-operated cylinder-type drum pump . . . . . 1135  
 Lift platforms . . . . . 831  
 Lifting accessories . . . . . 1342  
 Lifting blocks . . . . . 1331  
 Lifting clamps . . . . . 1335  
 Lifting hoists . . . . . 1320-1332, 1336  
 Lifting magnets, battery operated . . . . . 1345  
 Lifting magnets, BUX . . . . . 1343-1344  
 Lifting table carriage . . . . . 830  
 Lifting truck . . . . . 828-829  
 Lifts, vice . . . . . 898-899  
 Light alloy spirit levels . . . . . 664  
 Light intensity measuring devices . . . . . 736  
 Light metal folding rules . . . . . 653  
 Light metal hammers . . . . . 1062  
 Light sources . . . . . 702  
 Lightweight dial gauges Selection overview . . . . . 576  
 Limit flat gauges . . . . . 567  
 Limit gap gauges . . . . . 567  
 Limit gauges . . . . . 569, 574  
 Limit plug gauges . . . . . 566-567, 569, 571, 573-574  
 Limit plug gauges, thread . . . . . 574-575  
 Limit stops . . . . . 477  
 Limit thread plug gauges . . . . . 569-571, 573-575  
 Limited shaft slot gauges . . . . . 567  
 Limited thread ring gauges . . . . . 573  
 Listening devices . . . . . 1122  
 Live lathe centres . . . . . 411-413  
 Live self-centring taper . . . . . 413  
 Load frame . . . . . 1342  
 Load hoist, magnetic, BUX . . . . . 1343-1344  
 Load hook, safety . . . . . 1339  
 Load lifting magnets, battery operated BUX . . . . . 1345  
 Load protection . . . . . 1339-1341  
 Locker cabinets colours . . . . . 857, 860  
 Lockers . . . . . 851-852  
 Long goods shelving units . . . . . 781  
 Long-handled pincers . . . . . 1041  
 Long-nose flat pliers . . . . . 1030  
 Long-nose flat round-nose pliers . . . . . 1030  
 Long-nose round pliers . . . . . 1030-1031  
 Loop lifting sling . . . . . 1337  
 Low shoes . . . . . 1120  
 Low-pressure guns, SATA . . . . . 1272  
 Lubricant container . . . . . 1131  
 Lubricating brush . . . . . 1131  
 Lubricating compressor, high pressure . . . . . 1134  
 Lubricator, for coolant . . . . . 355

**M**

Machine bed clamps . . . . . 456  
 Machine brush . . . . . 1145  
 Machine halogen lamps . . . . . 1151  
 Machine lamp . . . . . 1150  
 Machine lamps . . . . . 1149  
 Machine lifter, hydraulic . . . . . 827  
 Machine mounting plates . . . . . 474-475  
 Machine reamers . . . . . 89-98  
 Machine reamers, solid carbide . . . . . 97-98

Machine saw blades . . . . . 155-156  
 Machine spindle heads . . . . . 422  
 Machine step . . . . . 823  
 Machine tap set . . . . . 134-135  
 Machine taps . . . . . 114-131  
 Machine taps selection overview . . . . . 102, 104,  
     . . . . . 106-107  
 Machine vices selection overview . . . . . 476  
 Machine vices, selection overview . . . . . 476  
 Machine-thread former . . . . . 131-132  
 Magazine bit holder . . . . . 998  
 Magazine holder, bit . . . . . 997  
 MAG-LITE torches . . . . . 1154  
 Magnet claws . . . . . 1345  
 Magnet cutting and drilling units,  
     BUX ROTOBUX . . . . . 1200  
 Magnet drill units . . . . . 1199  
 Magnet drilling units BUX ROTOBUX . . . . . 1200  
 Magnet lifter, BUX . . . . . 1343-1344  
 Magnet-core drilling machine . . . . . 1200  
 Magnetic angle setting equipment . . . . . 1123  
 Magnetic angle welding gauge . . . . . 1123  
 Magnetic bands . . . . . 1127  
 Magnetic bar grips . . . . . 1125  
 Magnetic clamping blocks . . . . . 442, 1124  
 Magnetic clamping plate selection aid . . . . . 440  
 Magnetic clamping plates . . . . . 440-442, 444-446  
 Magnetic clamping plates accessory . . . . . 446  
 Magnetic clamping type selection aid . . . . . 440  
 Magnetic collectors, small component . . . . . 1126-1127  
 Magnetic field measuring equipment . . . . . 447  
 Magnetic grips . . . . . 1126  
 Magnetic holder, dial gauge . . . . . 619  
 Magnetic measuring and clamping Vee block . . . . . 638  
 Magnetic measuring stands . . . . . 618-621  
 Magnetic round chuck . . . . . 443  
 Magnetic V-block, socket joint . . . . . 1124  
 Magnetic V-blocks . . . . . 638, 1123  
 Magnetic vice jaws . . . . . 901  
 Magnetic workpiece stop . . . . . 477  
 Magnetising equipment . . . . . 977  
 Magnets . . . . . 1123-1128  
 Magnets, decorative . . . . . 1127  
 Magnets, organisation . . . . . 1127  
 Magnifiers . . . . . 692-698  
 Magnifiers with handles . . . . . 693  
 Magnifiers, lens systems . . . . . 692  
 Magnifying glass lamps . . . . . 694-695  
 Magnifying glasses . . . . . 692-696  
 Magnifying lamp . . . . . 693  
 Mallets . . . . . 1062  
 Mandrels (grinding) . . . . . 420  
 Mandrels (turning) . . . . . 420  
 Manometer . . . . . 506  
 manual force measuring cell . . . . . 718  
 Manual grinding spindle . . . . . 1354  
 Manual lever gun, high pressure . . . . . 1132-1133  
 Manual lever snips . . . . . 1087  
 Manual, technical . . . . . 22  
 Manulift parallel gripping system . . . . . 1322-1323  
 Marbling pens . . . . . 1299  
 Marker . . . . . 1069, 1156  
 Marker and position lights . . . . . 1147  
 Marker tape, warning . . . . . 1187  
 Marker, embossing . . . . . 1350  
 Marking and control devices . . . . . 626  
 Marking devices . . . . . 623-627, 1350  
 Marking gauge . . . . . 623  
 Marking pen, compressed air . . . . . 1348  
 Marking tape, phase . . . . . 1187  
 Marking tools . . . . . 1069  
 Marking, laser . . . . . 1349  
 Marking-off and surface plates . . . . . 639  
 Mason's chisels . . . . . 1066  
 Masonry drill bits, carbide . . . . . 67-68  
 Material stand . . . . . 825-826  
 Measured data printer . . . . . 685  
 Measured data radio transmission systems . . . . . 688  
 Measured data transfer equipment . . . . . 680-683,  
     . . . . . 686-687

Measurement data transmission  
     Selection overview . . . . . 686  
 Measurement data transmission systems . . . . . 688  
 Measurement of the degree of cleanliness . . . . . 707  
 Measurement, tool wear . . . . . 409  
 Measuring and clamping Vee block, magnetic . . . . . 638  
 Measuring and control plates . . . . . 639-641  
 Measuring bars, JFA . . . . . 643  
 Measuring bridge, depth . . . . . 595  
 Measuring bus . . . . . 681  
 Measuring cells, force . . . . . 721-722  
 Measuring cup . . . . . 1130  
 Measuring data transmission,  
     devices for . . . . . 680-683, 686-687  
 Measuring device for checking machine  
     spindles . . . . . 408  
 Measuring device for checking tool holding  
     fixtures . . . . . 408  
 Measuring devices for the angle of rotation . . . . . 1014  
 Measuring devices QUICKCHECK . . . . . 558  
 Measuring devices, angle of rotation . . . . . 1014  
 Measuring devices, length . . . . . 558  
 Measuring devices, multipurpose . . . . . 1253-1254  
 Measuring devices, UNIMASTER . . . . . 557  
 Measuring equipment, magnetic field . . . . . 447  
 Measuring force testing system . . . . . 538  
 Measuring instrument calibration . . . . . 513  
 Measuring instrument holder . . . . . 538  
 Measuring instruments, comparative . . . . . 556, 558  
 Measuring instruments, OSIMESS . . . . . 607-608  
 Measuring instruments, SUBITO . . . . . 609-615  
 Measuring instruments, TESATRONIC . . . . . 670  
 Measuring magnifying glasses . . . . . 696-697  
 Measuring microscope . . . . . 698  
 Measuring plate . . . . . 641  
 Measuring probe . . . . . 672  
 Measuring probe application . . . . . 671  
 Measuring probe Basic terms . . . . . 673  
 Measuring probe working principle . . . . . 671  
 Measuring shovel . . . . . 1130  
 Measuring stands . . . . . 617, 619, 641  
 Measuring stands, magnetic . . . . . 618-621  
 Measuring systems . . . . . 683  
 Measuring systems, optical . . . . . 737  
 Measuring tables . . . . . 621-622  
 Measuring tool sets . . . . . 532, 661  
 Measuring wheels . . . . . 748  
 Mechanic's pliers . . . . . 1032  
 Mechanical stop watches selection overview . . . . . 743  
 Mechanical vices . . . . . 477-497  
 Metal abrasive cutter . . . . . 1207  
 Metal detector . . . . . 1251  
 Metal etcher . . . . . 1156  
 Metal lath pincers . . . . . 1041  
 Metal saw blades . . . . . 155-156, 1076  
 Metal separating saw . . . . . 1207  
 Metal-cutting band saw blades . . . . . 156  
 Meter counter . . . . . 748  
 Metric drill gauge . . . . . 652  
 Micro drills . . . . . 26  
 Micro drills selection overview . . . . . 12  
 Micro end mills selection overview . . . . . 218  
 Micro radius cutters selection overview . . . . . 218  
 Microfibre cloth . . . . . 1185  
 Micromagnifier . . . . . 698  
 Micrometer . . . . . 532-537, 539-547  
 Micrometer sets . . . . . 532-533  
 Micrometers . . . . . 514  
 Micrometers for inside transverse slots . . . . . 546  
 Micrometers Pictogramme overview . . . . . 514  
 Micrometers, curved . . . . . 532-537, 539-544  
 Micrometers, depth . . . . . 546  
 Micrometers, inside . . . . . 547, 550-554  
 Micrometers, internal, IMICRO . . . . . 548-550  
 Micrometers, precision pointer . . . . . 545  
 Micrometers, thread, curved . . . . . 542  
 Micropercussion marking machine . . . . . 1350  
 Microscope . . . . . 697-698  
 Microscope, stereo . . . . . 703-704  
 Mill arbour rings . . . . . 389-390

Mill arbours ..... 359, 364  
 Mill arbours for screw-on mill cutter ..... 365  
 Mill arbours, shell end ..... 358-359, 363-364,  
 ..... 373-374, 377-378, 381  
 Mill cutter, thread ..... 132-133  
 Millimetre hole gauges ..... 652  
 Milling bit holders ..... 358, 362, 373  
 Milling chuck ..... 359, 365, 374, 377  
 Milling chuck accessories ..... 391  
 Milling chuck concentricity tolerance ..... 392  
 Milling chucks ..... 359-360, 366-368, 375,  
 ..... 377-378, 391, 393  
 Milling cutter ..... 161  
 Milling cutter wear measurement ..... 409  
 Milling cutter with hole ..... 156-161  
 Milling cutter, carbide 185-204, 207-214, 227-270  
 Milling cutter, concave ..... 161  
 Milling cutter, drill ..... 133, 158  
 Milling cutter, single-angle ..... 161  
 Milling cutters with carbide tip  
 application range ..... 183  
 Milling cutters, single-angle ..... 99-101  
 Milling head, carbide ..... 185-186, 189, 202-204  
 Milling head, face ..... 185  
 Milling head, face, carbide ..... 187-188  
 Milling machines, edge ..... 1352  
 Milling machines, edge and contours ..... 1351  
 Milling magnetic clamping plates ..... 440  
 Milling tool, tip-, ENDFIX ..... 182  
 Mini boring tool selection aid ..... 313  
 Mini boring-out tool ..... 313-314  
 Mini end mills selection overview ..... 218  
 Minifix system ..... 313  
 Minifix system selection aid ..... 313  
 Mini-quick-clamping holder ..... 448  
 Mitre angle ..... 661  
 Mitre clamps ..... 904  
 Mitre shears ..... 1047  
 Mobile hardness test ..... 708  
 Modular crane system ..... 1326  
 Module - hard foam inserts ..... 837-838  
 Module hard-foam inserts ..... 837-838  
 Moisture measurement ..... 733-734  
 Monitoring mirror, welding and ..... 1101  
 Monkey wrenches ..... 925  
 Monocoque tool case ..... 761-762  
 Morse taper ejecting drifts (mechanical) ..... 347  
 Morse taper gauges ..... 568  
 Mounting iron ..... 1142  
 Mounting plates, elastic ..... 474  
 Moveable stair head ..... 825  
 Moveable step tool ..... 822  
 Multi purpose drill, solid carbide ..... 67  
 Multi twist drill selection overview ..... 12  
 Multi-axis clamping device ..... 489-490  
 Multi-axis clamping device sample applications ..... 490  
 Multiple slip joint spanner ..... 1036  
 Multi-channel nozzle, compressed air ..... 1271  
 MULTICHECK Shaft testing instrument ..... 635  
 MultiCom Connection cable ..... 685  
 MULTIFIX quick-change tool holder ..... 415-417  
 MULTIFIX spare parts ..... 415  
 MULTIFIX-tool change holder ..... 415-417  
 Multi-function clamping device ..... 497  
 Multi-function clamping vices ..... 497  
 Multi-function clamping vices,  
 selection overview ..... 476  
 Multi-function tool ..... 25, 1080  
 Multi-grain dressing tools ..... 1165  
 Multi-level wagon ..... 834  
 Multimeter ..... 1253-1254  
 Multimeter, digital ..... 1252  
 Multiple clamping devices ..... 494-496  
 Multiple clamping vices ..... 494-496  
 Multiple clamping vices, selection overview ..... 476  
 Multiple socket screwdriver ..... 972  
 Multipurpose cabinet colours ..... 857, 860  
 Multipurpose measuring device ..... 1253-1254  
 Multi-purpose scissors ..... 1086  
 Multipurpose scissors ..... 1084

Multi-station workbenches ..... 809

**N**

Nail wrench ..... 1142  
 NC high pressure machine vices ..... 476  
 NC machine vices, selection overview ..... 476  
 NC short drill chucks ..... 360-361, 372, 377  
 NC spotting drills ..... 24-25  
 NC spotting drills selection overview ..... 12, 18  
 NC vices, selection overview ..... 476  
 Needle file grips ..... 1071  
 Needle files, diamond ..... 1168-1169  
 Needle hammer, pneumatic ..... 1264  
 Needle-point files ..... 1070  
 Nibbler, sheet metal, electric ..... 1236  
 Nibbling tool ..... 1092  
 Nipple, plug in ..... 1266  
 NIVELTRONIC, level ..... 668  
 Noise level measuring devices ..... 736  
 Noise level measuring unit ..... 736  
 Non-cutting thread former ..... 132  
 Notch pliers ..... 1093  
 Nozzle gauges ..... 652  
 Nozzles, coolant ..... 1138  
 Number and letter punch sets ..... 1156  
 Number/letter stamping kit ..... 1156  
 Nut driver, slotted- ..... 984  
 Nut spinner, triangular ..... 1001  
 Nut splitter ..... 910  
 Nut tap ..... 115  
 Nuts ..... 460-461, 463-464  
 Nuts for mill arbours ..... 389  
 Nuts for T-slots ..... 460-461

**O**

Observation systems, stereo ..... 702  
 Offset screwdriver, multiple socket ..... 972  
 Offset screwdriver, XZN- ..... 972  
 Offset socket wrenches ..... 1003  
 Oil containers ..... 1131  
 Oil dispensers ..... 1128-1129  
 Oil guns ..... 1131-1132  
 Oil spray cans ..... 1128-1129  
 Oil stones applications ..... 1177-1178  
 Oil stones selection aid ..... 1171  
 Oil stones, ARKANSAS ..... 1178-1179  
 Oil stones, INDIGA ..... 1173-1174  
 Oil stones, INDIGA applications ..... 1173  
 Oil stones, RECORD ARKANSAS ..... 1177-1178  
 Oilers, compressed air ..... 1277  
 Open-end wrench set ..... 916-917  
 Open-end wrench, slogging ..... 914  
 Open-end wrenches ..... 914-915, 917  
 Operating tools ..... 933  
 Optical measuring systems ..... 737  
 Orbital sander, electric ..... 1211-1212  
 Organisation system, AQUARADO ..... 882-885  
 Oscillating compass saws, electric ..... 1236-1237  
 OSIMESS inside precision measuring  
 instruments ..... 607-608  
 Outlet sets, hydraulic ..... 503  
 Outside thread lathe tool ..... 273  
 Overalls ..... 1110  
 Oxyacetylene welding kit ..... 1098

**P**

Packaging tape ..... 1185, 1187  
 Packer's and multi-purpose scissors ..... 1086  
 Packing blocks ..... 458  
 Padlocks ..... 763  
 Paint spray guns, compressed air, SATA ..... 1272-1273  
 Painters' accessories ..... 1141  
 Painting requirements ..... 1141  
 Pallet shelving systems ..... 780  
 Pallet truck ..... 828  
 Pallet trucks ..... 829

Panel shelving ..... 781  
 Paper scissors ..... 1084  
 Paper towels ..... 1185  
 Parallel flat pliers ..... 1032  
 Parallel gauge block application areas ..... 559  
 Parallel gauge block borderline deviation ..... 559  
 Parallel gauge block deviation span ..... 559  
 Parallel gauge block properties of materials ..... 559  
 Parallel gauge block tolerance classes ..... 559  
 Parallel gauge blocks ..... 559  
 Parallel gripping system Manulift ..... 1322  
 Parallel pieces ..... 472-473, 638  
 Parallel support set ..... 472  
 Parallel underlay ..... 472  
 Parallel vices ..... 896-900  
 Part labelling tool ..... 226  
 Particle measuring device ..... 707  
 Partition strips for drawers ..... 801  
 Partitioning sets, drawer ..... 789-790, 798, 802  
 Partitions ..... 776  
 Pedal for measuring instruments ..... 685  
 Peg boards ..... 774-775  
 Pen lights, battery ..... 1153  
 Perching stools ..... 814-815  
 Perforated and slotted panel hanging cabinets ..... 773  
 Perforated and slotted panel stands ..... 776  
 Perforated and slotted panel tool cabinets ..... 773  
 Perforated and slotted panel tool  
 drawer cabinets ..... 773  
 Perforated panel vertical cabinets ..... 774  
 Perforated panel workshop trolley ..... 772  
 Perforated panels ..... 769, 774-776  
 Permanent magnet aids ..... 1123-1124  
 Permanent magnet clamping blocks ..... 442  
 Permanent magnet clamping plates ..... 440-442,  
 ..... 444-446  
 Permanent magnet round chuck ..... 443  
 Phase identification tape ..... 1187  
 Phase sequence indicator ..... 1252  
 Picking trolley, side and ..... 770  
 Pick-up magnet ..... 1122, 1126  
 Pick-up magnets ..... 1126  
 Pillar slewing crane ..... 1320, 1325  
 Pilots ..... 83-84  
 Pin extractor ..... 909  
 Pin key, square ..... 1004  
 Pin punches ..... 1067-1068  
 Pin type face wrenches ..... 965  
 Pincers ..... 1041  
 Pinch bars ..... 1142  
 Pipe benders ..... 911-912  
 Pipe cutter ..... 910-911  
 Pipe deburrers ..... 80, 1353  
 Pipe gripping pliers ..... 1032  
 Pipe testing pumps ..... 1136  
 Pipe tongs ..... 1037-1038  
 Pipe vices ..... 901  
 PKD indexable inserts ..... 336  
 Plain washers ..... 464  
 Plaster beaker ..... 1140  
 Plasterer's spatulas ..... 1140  
 Plastering trowels ..... 1140  
 Plastic folding rule ..... 653  
 Plastic hammers ..... 1062  
 Plastic labelling tape cassettes ..... 1159  
 Plastic shears ..... 1047  
 Plastic tape-strapping set ..... 1144  
 Plastic-material cutters selection overview ..... 220  
 Platform scales ..... 726  
 Plier wrenches ..... 1032  
 Pliers set ..... 1038  
 Pliers, for electronics ..... 1048-1051  
 Plug gauge, drill hole ..... 652  
 Plug gauges, limited ..... 566-567, 573  
 Plug gauges, SUBITO ..... 613-614  
 Plug-in tools for torque wrench ..... 1016, 1022-1024  
 Plug-on bars for ring-end wrench ..... 921  
 Plug-on ratchet ..... 955  
 Plug-on tools selection overview ..... 926  
 Pneumatic belt sander ..... 1262-1263





Sleeve tensioning jaw	420	Soldering stations, electric	1104	Solid carbide torus milling cutters	
Sleeves, coolant	1138	Soldering tips, spare	1104	selection overview	218, 224
Slewing crane	1320, 1324-1325	Solenoid clamping plates	440	Solid carbide twist drills	48-50
Slide gauges, thread flank	542	Solid carbide aluminium plates	230	Solid carbide twist drills selection overview	18
Slide guideways	451-453	Solid carbide aluminium cutters		Solid Clamp	404, 439
Sliding door cabinets	859-860	selection overview	220	Solid profiling milling cutters selection overview	224
Sliding handle carriage	832-833	Solid carbide angled cutter	228	Solid scraper	1083
Sliding-door cabinet colours	857, 860	Solid carbide angled cutters selection overview	224	Solid spotting drills selection overview	18
Sliding-door cabinets	861	Solid Carbide centring drills	21	Solide carbide drills selection overview	18
Sling bands, looped	1337	Solid Carbide centring drills selection overview	18	Solide carbide mini mill cutters selection	
Sling chains	1341	Solid carbide centring drills selection overview	18	overview	218
Sling swivel	1342	Solid carbide chamfering cutter possible		Spare parts for dial gauges	581
Slogging ring wrench	921	applications	228	Spark plug brushes	1144
Slogging wrenches, open-end	914	Solid carbide circular saw blades	152	Spark-plug connectors pliers	1031
Slot boring cutters	166-168	Solid carbide deburring tools	82	Special clamping jaws	481
Slot callipers, inside	524	Solid carbide disposable cutter	243	Special gauges	569
Slot milling cutter, T-	180	Solid carbide disposable milling cutters		Special jaws	481
Slot screws	462	selection overview	220	Special milling cutter, high speed, carbide	229
Slot-in shelving systems	778-779	Solid carbide end mill cutter	228-230, 232-270	Speedometer	745-746
Slotted bits	989, 998	Solid carbide end mill with internal cooling	250	Spherical cutters selection overview	224
Slotted chisels	1066	Solid carbide end mills selection overview	218, 220, 222, 224	Spherical head screwdriver	970-972
Slotted nut screwdrivers	984	Solid carbide face torus milling cutter	265-266	Spherical washers	464
Slotted panel cabinets	771	Solid carbide face torus milling cutters		Spike wedges	1065
Slotted panel cabinets for easy-view		selection overview	224	Spindle heads, machine-	422
storage bins	771	Solid carbide forward and backward		Spindle limit stops	421
Slotted panel hanging cabinets	773	deburring tools	82	Spiral borer, all over	39, 42, 44
Slotted panel stands	776	Solid carbide hard cutter	267	Spirit level for electric hand drills	1196
Slotted panel tool cabinets	773	Solid carbide hard cutters selection overview	218	Spirit level, laser	665
Slotted panel tool drawer cabinets	773	Solid carbide heavy-duty drills	21, 51-55	Spirit levels	664-666
Slotted panel workshop wagon	772	Solid carbide heavy-duty twist drills	53-54	Spirit levels Selection aid	663
Slotted panels	769, 776	Solid carbide high capacity drills		Spotting drills selection overview	12, 18
Slotted screwdriver VDE	987	selection overview	18	Spotting drills, NC	24-25
Slotted screwdrivers	977-978, 980-988	Solid carbide hole keyway cutter	229, 244-247	Spray guns, paint	1272
Slotted torque screwdriver	1004, 1006	Solid carbide hole keyway cutters		Spray pistols, compressed air	1271
Slotting and hole keyway cutter,		selection overview	218, 220	Sprayer	1129
solid carbide	237-238, 243	Solid carbide indexable inserts selection aid	294	Spreaders	1341
Slotting cutter, Solid carbide	238-239, 243	Solid carbide keyway cutters selection overview	218	Spring balance	717
Slotting cutters selection overview	162, 218, 220	Solid carbide machine reamers	97-98	Spring balancers	1310
Small dial gauges	576-585	Solid carbide micro end mills selection overview	218	Spring balancers, AUTOSTAT advantages	1310
Small dial gauges Selection overview	576	Solid carbide micro radius cutters		Spring balancers, AUTOSTAT comparison	1311
Small dial indicators	576-577, 603	selection overview	218	Spring collets	359-360, 365-367, 374, 377-379, 382, 391-392
Small item box	752-753	Solid carbide multi purpose twist drills	67	Spring dividers	623
Small nylon hammers	1063	Solid carbide NC spotting drills		Spring pulleys, AUTOSTAT	1310-1319
Small parts assortment case	753	selection overview	18	Spring pulleys, AUTOSTAT features	1310
Small parts case	752	Solid carbide peripheral milling	262	Square files	1073
Small parts magazines	754	Solid carbide plastic-material cutters		Square inserts	146
Small saw bows	1077	selection overview	220	Square pin key	1004
Smoke extraction equipment	1284	Solid carbide quarter circle milling cutter	228-229	Square ring wrench	964
Smoothing trowels	1140	Solid carbide quarter circle milling cutters		Square ring wrenches	964
Snap-on hooks	1333	selection overview	224	Square socket key	1004
Socket board	1248	Solid carbide radius copy milling		Squeezegee	1145
Socket joint for magnetic V-block	1124	cutter	242, 268-269	Stack container	766
Socket joint for magnets	1124	Solid carbide radius copy milling cutters		Stacker bars	1336
Socket key kit, power	959-963	selection overview	224	Staircase, mobile	825
Socket key, square	1004	Solid carbide radius cutter	233, 239-241	Stamping device	1349
Socket spanner	999-1003	Solid carbide radius cutters		Stand magnifiers	696
Socket spanner fittings	927-931, 933, 935-938, 941-942, 944-948, 952-954, 956	selection overview	218, 224	Staple gun	1142-1143
Socket spanner for tap	354	Solid carbide radius end mill cutter	260	Staple remover	1143
Socket wrench inserts	927-931, 933-942, 944-948, 950-954, 956-958	Solid carbide radius end mills		Stardrill for indexable inserts	62
Socket wrench ratchet with hammer	945	selection overview	224	Steam jet cleaning equipment	715
Socket wrench selection overview	926	Solid carbide roughing cutter	230-231, 253-255, 260	Steel band cutters	1086
Socket wrench, hexagonal	999-1003	Solid carbide roughing cutters		Steel band shears	1086
Socket wrench, square	1004	selection overview	218, 222	Steel band strapping device	1143
Socket wrench, tubular	1001	Solid carbide roughing-finishing-cutter	254	Steel bottle carriage	1098
Sockets and driving tools	927-959	Solid carbide single tooth milling cutter	231	Steel cabinet colours	857, 860
Soft solder	1105	Solid carbide slotting and hole keyway		Steel cabinets	849-852, 854-858
Soft soldering and brazing fittings	1099-1100	cutter	237-238, 243	Steel cabinets with sliding doors	859-861
Soft-face hammers	1063-1065	Solid carbide slotting cutter	238-239, 243	Steel cutter holder, KOMET	277-279
Software for measured data transmission	686	Solid carbide slotting cutters		Steel cylinder trolleys	1098
Selection overview	686	selection overview	218, 220	Steel drill holder, KOMET	278
Solder for soft soldering	1105	Solid carbide spherical cutter	242	Steel inside thread boring bars, KOMET	280
Soldering and brazing fittings	804	Solid carbide spherical cutters		Steel punch letters	1156
Soldering equipment	1100	selection overview	224	Steel punch numbers	1156
Soldering fluid brush	1131	Solid carbide stub reamers	98	Steel re boring cutters, KOMET	278
Soldering irons, electric	1102-1103	Solid carbide thread milling cutter	132-133	Steel rulers	658
Soldering irons, gas	1103	Solid carbide threaded mill cutters	133	Steel scales	657
Soldering kits	1099-1100	Solid carbide throw-away cutter	243	Steel shovels	1146
		Solid carbide torus milling cutter	248-249, 252, 258, 266-270	Steel squares	659-661
				Steel thread boring bars, inside, KOMET	280



Tool clamping, thermal ..... 400  
 Tool data holder ..... 398  
 Tool extensions ..... 143  
 Tool furnishing ..... 887  
 Tool handles ..... 1075  
 Tool handling ..... 887  
 Tool heads ..... 439  
 Tool heads for NC machines ..... 439  
 Tool holder can be used ..... 435  
 Tool holder for NC machines ..... 435-438  
 Tool holder for turning ..... 300, 312  
 Tool holder system, WTS ..... 887-892  
 Tool holder, indexable inserts, for turning,  
 ORION ..... 302-311, 314-321  
 Tool holders ..... 896  
 Tool holders, MULTIFIX ..... 415-417  
 Tool holding fixture ..... 404, 439  
 Tool holding fixtures accessories ..... 388-389, 391,  
 ..... 396-397  
 Tool holding fixtures selection overview ..... 356  
 Tool machine cleaning device ..... 398  
 Tool magazine, small parts ..... 754  
 Tool markers ..... 880  
 Tool mounting block ..... 404  
 Tool pre-setting equipment ..... 408-409  
 Tool rack systems, installation options ..... 777  
 Tool roll ..... 757  
 Tool sets ..... 846-848  
 Tool shelving units ..... 777-781  
 Tool shelving units installation options ..... 777  
 Tool storage ..... 887  
 Tool transport ..... 887  
 Tool trolleys ..... 810, 836-845  
 Tool trolleys colours ..... 810  
 Tool wagon, easy-view storage bins ..... 769  
 Tool wall ..... 776  
 Toolbits, carbide ..... 272  
 Tooling tweezers ..... 1052  
 Toolmaker clamps ..... 901  
 Tools for recessing, longitudinal turning and  
 cutting-off ..... 289-290  
 Tool-wear measurements ..... 409  
 Toothed ring drill chuck ..... 348  
 Top panels, workbench ..... 804  
 Torches ..... 1154  
 Torque multiplier ..... 1024  
 Torque screwdriver hexagon socket ..... 1006, 1009  
 Torque screwdriver, Allen key ..... 1006, 1009  
 Torque screwdriver, Torque ..... 1006  
 Torque screwdriver, TORX ..... 1005-1006, 1008  
 Torque screwdrivers ..... 1004-1009  
 Torque spanner ..... 1009-1024  
 Torque test workshop unit ..... 1025  
 Torque values ..... 1010  
 Torque wrench ..... 1009-1024  
 Torque wrench short insertion ..... 1010  
 Torque wrench testers ..... 1025  
 Torque wrench, electronic ..... 1021  
 Torque wrenches break away torque ..... 1010  
 Torque wrenches comparison ..... 1012  
 Torque wrenches selection overview ..... 1010  
 Torus milling cutter, solid carbide ..... 248-249,  
 ..... 252, 258, 266-270  
 Torus milling cutters selection overview ..... 218, 222,  
 ..... 224  
 TORX bits ..... 991  
 Torx keys ..... 972-974, 985-986  
 TORX screwdrivers ..... 968, 972-976, 978  
 TORX torque screwdrivers ..... 1005-1006  
 Towels ..... 1185  
 Traction power measuring unit applications ..... 717  
 Transfer pipe, coolant ..... 399  
 Transport cases ..... 755  
 Transport gripper ..... 1334-1336  
 Transport round pliers ..... 1334  
 Transport trolley ..... 832  
 Transport trolleys ..... 832-835  
 Transport wheel sets ..... 827  
 Trapezoidal stepped cutting tap ..... 122  
 Travelling crane ..... 1327

Travelling trolleys ..... 1330  
 Triangular grinder, Electric- ..... 1212-1213  
 Triangular hollow scraper ..... 1083  
 Triangular nut spinners ..... 1001  
 Triangular scraper ..... 1083  
 Triangular solid scraper ..... 1083  
 Tricolated protective gloves ..... 1107  
 Triple pliers ..... 1053  
 Trolley clamps ..... 1330  
 Trough, multi-purpose ..... 1131  
 Trowels ..... 1140  
 T-slot covers ..... 463  
 T-slot milling cutter ..... 180  
 T-slot milling cutters selection overview ..... 162, 218  
 Tube drill, undersize ..... 63  
 Tubular double ended hexagonal  
 socket wrenches ..... 1001-1002  
 Tubular hexagonal nut spinner ..... 1001-1002  
 Turbine grinder, compressed air ..... 1258  
 Turning selection overview ..... 301  
 Turning tools, HSSE ..... 271-274  
 Tweezers ..... 1051-1052  
 Twin hoses ..... 1099  
 Twist catcher ..... 1333  
 Twist drill grinding gauges ..... 647  
 Twist drill test gauge ..... 647  
 Twist drills ..... 21, 25-27, 29-42, 44  
 Twist drills selection overview ..... 12, 14, 16, 18  
 Twist drills with MT ..... 43-44  
 Twisted wire for lead sealing ..... 1038  
 Two speed drills and hammer drills ..... 1194-1195  
 Two speed hand drills ..... 1192-1195  
 Type embossing machines, DYMO ..... 1157-1158  
 Tyre pressure measuring device, hand ..... 1271

**U**

Ultra-small boring bars, KOMET ..... 298  
 Ultrasonic cleaning ..... 712  
 Ultrasonic cleaning basic concepts ..... 712  
 Ultrasonic cleaning equipment ..... 712-714  
 Ultrasonic cleaning products ..... 716  
 Ultrasonic cleaning systems ..... 715  
 Ultrasonic measuring devices ..... 731  
 Ultrasonic measuring devices  
 selection overview ..... 731  
 Ultrasonic thickness gauge ..... 732  
 Ultrasonic wall thickness measuring  
 devices ..... 731-732  
 Ultrasonic wall thickness measuring devices  
 selection overview ..... 731  
 Undercarriages, moving ..... 1330  
 Under-counter cabinet, vice ..... 806  
 Under-counter cabinet, power supply ..... 807  
 UNICHECK comparison measuring instrument ..... 556  
 UNIMASTER measuring device ..... 557  
 UNISIX clamping tool, KOMET ..... 297  
 UNISTAHL system workstations ..... 808  
 Universal blade ..... 1077  
 Universal comparison measuring instrument ..... 556  
 Universal cutting tool ..... 1079  
 Universal driving tool ..... 939  
 Universal files ..... 1073  
 Universal joints ..... 936, 943, 955, 958  
 Universal keys ..... 1003  
 Universal lamps ..... 1149  
 Universal measuring device UNIMASTER ..... 557  
 Universal ratchet inserts ..... 146  
 Universal ratchet sets ..... 146  
 Universal-ratchets ..... 146  
 Unsoldering set ..... 1105  
 Upholstery for chairs ..... 817  
 USB Connection cable ..... 684  
 USB keyboard interface ..... 687

**V**

Vacuum cleaner ..... 1279-1283  
 Vacuum cleaner, industrial ..... 1281-1283

Vacuum hoisting gear ..... 1329  
 Vacuum lifter ..... 1329  
 V-blocks, magnetic ..... 1123  
 VDE bit changing system ..... 987  
 VDE change bit system ..... 987  
 VDE cross- cross-head screwdriver ..... 987  
 VDE screwdriver ..... 987  
 VDE slotted screwdriver ..... 987  
 Vee blocks ..... 637-638  
 Vee-shaped parallel pieces ..... 638  
 Velcro-fastening discs ..... 1301  
 Vernier calliper Selection overview ..... 514  
 Vernier callipers ..... 514, 519-525  
 Vernier callipers pictogramme overview ..... 514  
 Vernier callipers, chamfer ..... 648  
 Vernier callipers, marking ..... 623  
 Vernier callipers, pocket ..... 515-519  
 Vernier depth gauges ..... 525-531  
 Vernier gauges, depth ..... 525-531  
 Vertical cabinets, perforated panel ..... 774  
 Vertical draw-bars ..... 421  
 Vertical grinders, compressed air ..... 1259  
 Vertical length measuring unit  
 measuring options ..... 630  
 Vertical length measuring unit,  
 TESA MICRO-HITE ..... 630-634  
 Vertical quick action toggle clamps ..... 465-466  
 V-heads ..... 652  
 Vice base plate ..... 900  
 Vice clamping jaws ..... 481  
 Vice jaws ..... 896, 901  
 Vice lift ..... 898-899  
 Vice under-counter cabinet ..... 806  
 Vices ..... 896-900  
 Vices, engineering ..... 900  
 Vices, machine ..... 477-497  
 Vices, selection overview ..... 476  
 Visual grinding machine ..... 1181  
 Voltage detector, metal and ..... 1251  
 Voltage tester ..... 986, 1251, 1253-1255  
 Voltage tester, automobile ..... 1255  
 Voltmeter ..... 1251, 1253-1255

**W**

Wad punches ..... 1091  
 Wall rails ..... 774  
 Wall slewing crane ..... 1320, 1324  
 Wall thickness measuring devices ..... 731  
 Wall thickness measuring devices,  
 ultrasonic ..... 732  
 Wall-mounted shelves, easy-view storage  
 bins ..... 768, 770-771  
 Wash cloths ..... 1185  
 Washing bowls ..... 1131  
 Washing containers ..... 1131  
 Waste container ..... 782  
 Watches, stop ..... 743-745  
 Watchmaker's magnifying glass ..... 696  
 Watchmaker's screwdrivers ..... 979  
 Water hose reel ..... 1250  
 Water-pump pliers ..... 1032, 1034-1037  
 Wear measurement ..... 409  
 Wear measurement milling cutter ..... 409  
 Wedges for hammers ..... 1065  
 Weighing technology ..... 725  
 Weld seam gauges ..... 649  
 Welder's apron ..... 1113  
 Welder's gauntlets ..... 1106  
 Welder's goggles ..... 1111  
 Welder's hammer ..... 1061  
 Welder's jacket ..... 1110, 1113  
 Welder's protective clothing ..... 1113  
 Welder's protective shield ..... 1113  
 Welders' shields ..... 1113  
 Welding and cutting torch ..... 1098-1099  
 Welding and holding magnets ..... 1123  
 Welding and monitoring mirror ..... 1101  
 Welding angle gauge, magnetic ..... 1123

Welding cabins .....	1115	Work gloves .....	1106-1107	Workshop table trolley .....	810-811
Welding equipment, Electrodes .....	1101-1102	Work place crane .....	1324	Workshop table trolley colours .....	810
Welding kit, flame .....	1098	Workbench .....	787-790, 798, 805-807	workshop vernier callipers .....	520-523
Welding self-grip pliers .....	1034	Workbench accessories .....	787	Workshop wagon .....	810, 836-845
Western connector, crimping pliers .....	1059	Workbench colours .....	787, 791, 797, 799, 802	Workshop wagons .....	810
Wet / dry Vacuum cleaner .....	1279-1283	Workbench drawers .....	792	Workstation lamps, halogen .....	1150
Wheel case .....	759-760	Workbench energy panel add-ons .....	809	Workstation mats .....	819-821
Wheel workbenches .....	811-813	Workbench energy strips .....	787, 801	Workstation system, UNISTAHL .....	808
Wheels, cup .....	1181	Workbench executions .....	787, 789, 791, 797, 799, 802	Workstations, UNISTAHL system .....	808
Wheels, measuring .....	748	Workbench features .....	787, 789, 791, 797, 799, 802	Worktables .....	786
Whirl .....	1333	Workbench selection aid .....	787, 791, 797, 799, 802	Worktops .....	804
Wide-bay shelving systems .....	779-780	Workbench supports .....	804	Worm drive hose clips .....	1277
Winches .....	1332	Workbench top panels .....	804	Woven abrasive belts .....	1293
Wire brushes .....	1303-1305	Workbenches .....	787-789, 791-803, 805	Woven abrasive belts for belt sanding machines .....	1356-1358
Wire hand brushes .....	1144	Workbenches, group .....	809	Wrenches, hexagon .....	966-972, 977-978
Wire rope and cable shears .....	1047	Workbenches, wheeled .....	811-813	Writing desk top .....	854
Wire round brushes .....	1303-1304	Working shoes .....	1120	WTS Tool carrier system .....	887-892
Wire strippers .....	1053-1056	Working step-ladder .....	823	WTS tool readiness wagon .....	889-890
Wire/bolt cutters .....	1045	Workpiece stops .....	430, 477	WTS transport and tool readiness wagon ..	889-890
Wire-stripping tools .....	1054-1055	Workpiece trolley, perforated panel .....	772		
Wire-twisting pliers .....	1034	Workpiece trolley, slotted panel .....	772		
Wood rasps .....	1074	Workplace mats selection overview .....	819		
Wooden case for Vernier callipers .....	521	Workplace systems .....	808		
Wooden floor grid .....	822	Workshop brooms .....	1145		
Wooden floor grids selection overview .....	819	Workshop chairs .....	814-817		
Wooden folding rule .....	653	Workshop crane .....	1327-1328		
Wooden hammers .....	1065	Workshop files .....	1073-1074		
Wooden handles for forge hammers .....	1065	Workshop lamps .....	1146		
Wooden handles for hammers .....	1065	Workshop presses, hydraulic .....	508		
Work chairs .....	816-817	Workshop stool .....	814		
Work chairs upholstery .....	817				

**X**

XZN screw driver .....972

**Z**

Zero adjuster .....407-408  
 Zero point clamping system .....498-499  
 Zero-point clamping system selection overview .476



Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page
<b>11</b>		11296	59	<b>13</b>		13543	145	15814-15815	182
11000	22	11350-11373	66	13010	108	13544	145	15850	182
11001-11004	23	11400-11404	69	13012	108	13545	147	15906-15908	177
11001-11011	22	11405	69	13013	109	13547	147	15914	170
11010	23	11407	70	13014	109	13549-13551	147		
11012	23	11408-11409	70, 71	13015	110	13553	146	<b>16</b>	
11014	23	11410	69	13017	110	13555	146	16002-16108	185
11015-11019	24	11438-11439	72	13020-13023	111	13557	146	16003-16108	186
11016	24, 25	11438-11452	72	13022	112	13559	147, 148	16004-16108	189
11020-11041	27	11440	73	13030	112	13561	148	16017-16108	190, 191, 192
11021-11033	31	11442-11451	72	13035	112	13562	149	16018-16108	192, 193
11022	25	11443	73	13040	113	13563	149	16019-16108	194, 195
11026-11039	29	11446	74	13045-13046	113	13568	148	16022-16108	187
11028-11029	30	11449-11454	73	13052-13056	123	13730-13733	150	16024-16108	187, 188
11036	33, 34	11480	74	13057-13130	118	13735	150	16025-16108	188
11037	32, 41	11483	74	13058	124	13738	150	16026	198
11042-11050	40, 41	11489	74	13059	115	13740	150	16026-16108	198, 199
11045-11048	40	11492-11493	75	13063	116			16027-16108	200
11051	35	11495	75	13083-13118	115	<b>14</b>		16028-16108	200
11051-11086	41	11497	76	13088-13139	119	14002	151	16032	201
11052-11053	36	11498	76	13100-13106	116	14004	153	16032-16108	201, 202
11054	26	11499	77	13108-13109	118	14008	153	16035	203
11055-11060	38	11500	78	13108-13109	118	14009-14011	154	16035-16108	203
11056-11059	37	11500-11501	77	13113-13119	117	14010	151	16037-16108	204
11061	39	11501	78	13134-13203	119	14015	154	16055-16108	193, 196
11063	39, 42	11502	78	13143-13144	121	14025	155	16095	205, 206
11064	34	11507	79	13207	122	14103	156	16098	207
11067	42	11511	79	13228	122	14105	157	16101	207
11067-11068	42	11512	79	13229	122	14123	157	16102-16108	208
11070-11076	43	11513	80	13246-13247	114	14131	157	16107-16108	209, 210, 211
11074	44	11515	81	13250	120	14131	157	16109	185, 186, 187, 188,
11084-11085	44	11515-11516	80	13251-13253	121	14164-14169	158	189, 190, 193, 194, 196, 199,	204, 209, 211
11086	33	11517-11518	80	13254-13266	124	14193-14195	158	16113	198, 201, 202
11087-11088	36	11531-11532	81	13260-13270	125	14207-14233	159	16120-16130	212, 213, 214
11100	45	11535-11536	82	13261	115	14247-14248	160	16121-16130	212, 213, 214
11101	45	11537-11538	82	13263	125	14312	160	16128	215, 216
11106	45	11539	82	13264-13318	126	14314	161	16141	197
11112	45	11540-11543	83	13271-13291	120	14332	161	16150	217
11115	46	11540-11585	83	13274-13298	128	14345	161	16385	152
11117	46	11567	83	13286-13313	128	14989-14990	159	16521	227
11118	46	11569	84	13305-13312	127	14991-14992	160	16525	227
11119	47	11571	84	13320-13335	129			16530	227
11120	40	11572	84	13348	130	<b>15</b>		16531	164, 226, 1349
11121-11122	47	11582	84	13358	130	15005	164	16564	226
11134	47	11584	84	13359-13361	131	15007	164	16631	231
11135	48	11590-11593	85	13378-13379	131	15013-15023	165	16633-16634	231
11140-11141	48	11595	85	13394	132	15053-15055	165	16637-16638	232
11150-11151	49	11597	86	13395	133	15061-15063	164	16639-16640	232
11150-11153	49	11602	87	13396	134	15091-15093	166	16641-16642	233
11155-11157	50	11602-11604	87	13399	134	15102-15105	167	16643-16644	234
11158-11159	54	11606	88	13400	134	15112-15119	166	16645-16646	235
11160	56	11610-11614	88	13401	135	15124	167	16647-16648	236
11160-11162	56	11616	89	13402	135	15158	168	16649-16650	236
11162	56	11621	92	13403	135	15159-15901	168	16651	230
11163	57	11622	89	13407	136	15170-15178	169	16700	229
11164-11167	57	11624	89	13407	136	15188-15902	170	16704-16706	228
11169	24	11626	90	13410-13412	137	15193-15904	171	16711	228, 229
11170-11172	51	11627	90	13417	138	15215	171	16713	237
11173-11174	53	11628	91, 92	13417-13421	137	15220-15222	172	16714	237
11175	53	11630	92	13418	138	15223-15238	172	16723-16724	239
11176	54	11632	93	13434	138	15241-15242	173	16725	238
11178-11179	55	11636-11642	93	13440-13442	139	15251-15252	173	16727-16728	238
11180-11185	67	11643	94	13445	139	15257-15258	173	16732-16733	239
11181-11182	55	11646	94	13446-13447	140	15261	174	16738	239
11183-11188	52	11670	94	13450	140	15269-15907	175	16739	240
11186	67	11672-11673	95	13460	140	15270-15274	174	16740	240
11187	67	11674-11678	95	13466	141	15271	175	16741	241
11190	68	11675	95	13470	141	15272-15275	176	16742-16743	241
11191	68	11726	96	13480-13488	141	15278-15280	176	16744-16745	241
11192	68	11730	96	13491	142	15290	176	16746	242
11202-11295	60	11734-11737	97	13493	142	15300	177	16749	242
11210	62	11744	97	13496	132, 133	15311-15312	177	16750	243
11213-11295	58	11770	97	13510-13516	136	15319	178	16760-16763	243
11220	59	11772	98	13518-13520	136	15324-15325	178	16770-16771	243
11230-11295	63	11779	98	13530	143	15350-15351	178	16777	244
11240-11295	63			13532	143	15361-15364	179	16780	244
11242-11295	64	<b>12</b>		13533	143	15366	179	16782-16783	245
11251-11295	64	12050	99	13535	144	15461	180	16785	244
11262	65	12055	99	13537	144	15792-15794	180	16787-16788	245
		12098	100, 101	13539	144	15800	181		
				13541	145	15804-15806	181		

Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page
16790-16792	246	17606	274	17996	335	22277	419	23285	378
16793-16794	246	17616	274			22285	420	23291	395
16795-16796	247	17626	274	<b>19</b>		22289	420	23291-23293	395
16798	247	17631-17633	275	19003-19011	338	22300	420	23295	360, 366, 391
16810	247	17636-17638	275	19004-19011	338	22300-22301	420	23300	359, 365, 374, 377
16815-16817	229	17641	275	19005-19011	338	22365-22366	421	23303-23308	391
16819-16821	230	17646	275	19006-19011	338	22367	421	23304	378
16825-16826	250	17651	276	19008-19011	339	22368	422	23305	359, 366
16827-16828	254	17655	276	19009	339	22370	423	23320	392, 393, 394
16830	248	17660	276	19014-19016	340	22380	423	23322	392, 393
16832	248, 249	17665	281, 282	19100	340, 341	22381	424	23325	379
16835	248	17666	284, 285	19161-19164	341	22381-22422	423, 424	23326	394
16837-16838	250	17668	283	19165-19166	342	22385-22394	424, 425	23329	396
16839	251, 252, 253	17670	285, 286	19170-19173	342	22389-22395	426	23330	360, 366, 367,
16840-16845	253	17701	286	19205-19207	343	22391-22396	426		375, 377
16847	254	17702	287	19210	343	22411-22419	425	23331	368
16848	254	17703-17704	287			22412-22420	426	23332	393
16849	255	17706-17707	287	<b>21</b>		22414	426	23333	368, 369, 375, 376
16850	256	17710-17717	288	21102	346	22416-22422	427	23335	369, 376
16851	256, 257	17718	289	21107	346	22423	427	23336	397
16852	255	17719	289	21114-21115	346	22425-22426	428	23340	396
16856	258	17720	289	21150	346	22425-22441	427	23348	397
16857	259	17721-17723	290	21155	346	22427-22428	429	23349	396
16862	259, 260	17735	290, 291	21160	347	22437-22443	429	23350	370
16866	260	17737	292, 293	21165	347	22445	425	23360	367, 391, 392
16868	260	17741	291, 292	21269	347	22451	430	23400	400, 401, 402
16871-16877	261	17743	293	21270	347	22471	428	23401	400, 401, 402
16878	262	17745	290	21271	347	22472	430	23403	403
16879	262	17747	292	21290-21294	348	22474	430	23416	402
16880-16885	263	17748	294	21292-21294	348	22505-22510	431	23420	385, 386
16883	263	17749	294	21300-21304	349	22525	431	23420-23430	370, 385
16886	261	17751	294, 295	21302	349	22540	431	23421	386
16887	264	17752	295	21303	349	22670	432	23422	387
16917	264	17755	295	21305	349	22671	432	23425	370
16919	265, 266	17756	296	21308	350	22672	432	23426	371
16920	266	17758	296	21311-21312	350	22674	432	23431	403
16925-16926	267	17760	296	21313	350	22681	433	23435	387, 388
16927	268	17762	297	21314	351	22700-22702	435	23436	388
16930	269	17766	297	21318	357, 361, 372	22700-22797	435	23438	371
16940	267	17770	297	21323	357, 361	22710-22716	435	23550	398
16942	268	17807	298	21328	360	22721	436	23690	397
16963	269	17815	298	21329	361, 372, 377	22725	436	23691	398
16971	270	17820	299	21520	354	22755	436	23692	398
		17820-17841	299	21528	354	22766	436	23698	398
		17825-17845	306	21540-21545	352	22770	436	23702-23786	379
		17826-17845	307	21550	352	22772	437	23715	399
		17830-17844	302	21555	353	22775	437	23716	399
		17831-17844	303	21556	353	22782-23308	438	23721	380
		17832-17844	306	21560-21566	353	22787	438	23722	380
		17833-17844	305	21575	394	22798	438	23725	381
		17834-17844	304	21610-21615	354			23730	382
		17835-17844	302	21619	354	<b>23</b>		23732	383
		17836-17841	304	21655	355	23050	357, 362, 373	23733	384
		17836-17844	305	21665	355	23080	358, 362, 373	23735	384
		17837-17844	309, 310			23082	362	23737	385
		17838-17844	310	<b>22</b>		23083	358	23744	381
		17839-17844	311	22104-22109	410	23092	388	23746	381
		17840-17844	311	22110	410	23098	388	23755	385
		17846	314, 315, 316	22112-22113	410	23100	407	23760	382
		17847	316, 317	22114	411	23107	359, 364	23780	399
		17848	317	22121-22122	411	23130	389	23785-23911	404
		17849	319	22124-22127	411	23135	389	23912	404, 439
		17850	318	22128	412	23136	389	23914	404
		17851	319, 320	22130	412	23140	390	23915	405
		17852	320	22132-22133	412	23142	389	23921	405
		17853	321	22144-22146	413	23145	358, 363	23923	405
		17854	321	22147	413	23150	363, 373	23924	406
		17855	319	22174	413	23155	358, 364, 374, 377	23925	406
		17859	307, 308	22176	413	23155-23156	364	23928	407
		17860	309	22208	414	23156	374	23931	407
		17863 65, 323, 324, 325, 326		22220	414	23159	359	23932	408
		17864	326, 327, 328	22240-22250	415	23168	378	23933	408
		17865	332	22241-22253	416	23170	365	23935	408
		17866	332, 333, 334	22244-22255	417	23185	390	23945	408
		17867	328, 329, 332	22247-22249	417	23190	390	23950	409
		17868	330, 331	22265	418	23195	390		
		17869	331, 334, 335	22271-22273	419	23200	390	<b>24</b>	
		17871	336	22274-22275	419	23210	391	24310-24490	440
		17924-17980	303	22276	419	23272	357, 360	24313	441
		17995	337			23275	372, 376	24335	441



Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page	
34295	622	<b>37</b>	37003-37004	653	39659	679	44425	722	50126	815
34310-34314	622		37005	654	39661	680	44500	723	50127-50128	816
<b>35</b>			37017-37019	654	39662	676	44506	723	50128	817
35003	623		37020	654	39665	676	44507	723	50130	814, 815
35010-35015	623		37025-37027	654	39675	680	44526	724	50164	777
35025-35026	623		37038-37048	655	39828	680, 682	44530	724	50165	779, 780
35036	623		37051-37057	656	39850	685	44603	725	50166	779
35042-35044	624		37065	656	39852	684	44605	725	50168	778
35051	624		37086-37087	655	39855	685, 686	44606	726	50170	780
35052	624		37101-37102	657	39870	686, 687	44607	726	50171	781
35053	624		37151-37152	657	39956	681, 682	44615	726	50185	786
35060	625		37200-37201	657	<b>41</b>		44616	727	50192	781
35065-35116	624		37305	653	41100-41130	692	44618	727	50193	781
35075	625		37315-37350	653	41140	692	44619	728	50199	789, 790
35100-35103	625		37420-37451	658	41141	692	44805	738, 739, 740	50200	787, 788, 789
35110-35117	626		37550-37551	658	41145	693	44806	741	50204	791, 792, 793,
35120	627		37630	658	41170	696	44807	741		794, 795, 796
35125	627		<b>38</b>		41185	695	44810	742	50206	797, 798
35140	626		38051-38052	659	41185	695	<b>45</b>		50207	800
35147	629		38058-38061	659	41190	696	45800	729, 730	50211	805, 807
35160	630	38062-38063	659	41240	693	45900	731	50212	803, 805, 806, 807	
35170	630, 631	38073-38074	659	41325-41332	693			50225	818, 819, 820,	
35171	632	38111	660	41330	694	<b>46</b>			821, 822	
35172	633, 634, 635	38125-38135	660	41331	694	46100	731, 732	50225-50229	819	
35175	636	38154	660	41334	695	46105	733	50228	801, 802	
35176	636	38160	660	41335-56882	694	46120	733, 734	50229	818, 822	
35176-39852	684	38165	660	41336	694	46130	733, 734	50232	801, 805	
35180-35181	637	38170	661	41338	695	46135	735	50233	804	
35182	637	38175	661	41450	700	46150	735	50236	809	
35185-35188	637	38176	661	41455	701	46150	735	50238-50239	808	
35209	638	38191	661	41460	701, 702	46400	736	50260	822, 823, 824, 825	
35213	638	38201	661	41500	699	46450	736	50261	825, 826, 827	
35221	472	38217	662	41520	564	<b>47</b>		50262	828, 829, 830	
35278	642	38230-38231	662	41528	696	47000	739	50266	834	
35281-35285	642	38240	662	41530	696			50267	832	
35292	643	38265	663	41535	697	<b>48</b>		50268	832, 833, 834	
35296	643	38271	662	41540	696	48450	748	50270	835	
35342-35343	643	38277	663	41541	693	48600	669	50271	812	
35348	638	38290	664	41545	697			50272	813	
35350	639	38300-38320	664	41548	698	<b>50</b>		50273-50274	840	
35370	639	38325	665	41550-41556	698	50001	752	50274	841, 842	
35443-35463	640	38328	665	41560-41561	697	50001	752	50275	841	
35467	641	38330	665	41562	697	50002	752, 754	50276	846	
35471	644	38340	666	41570	693	50003	753	50277	839	
35480	644	38402	666	41580	698	50004	753	50278	836, 839, 840,	
35482	645	38420-38423	666	41610	702	50005-50015	753		844, 845	
35483	645	38440-38443	666	41611	703	50018	755	50279	843	
35485	646	38445	667	41612-41613	703	50021	756	50282	810	
35490	646	38446	665	41613	704, 705	50023	854	50284	810	
35550	647	38448	667	41614	706, 707	50025	763	50285	811	
35705-35706	635	38450-38460	668	<b>42</b>		50027	764	50295	863, 864	
		38600	667	42110	708	50028	764	50295-50315	862	
		<b>39</b>		42110-42113	708	50032	854	50298	865, 893	
		39005-39007	743	42140	708	50032-50108	853	50300	867, 868, 869	
		39015	743	42155-42160	709	50044	854	50302	870, 871	
		39026	743	42195-42196	710	50045	855, 856	50310	872, 873, 874	
		39062-39063	744	42214-42215	710	50046	855, 859	50315	875, 876, 877	
		39065	744	42365	710, 711	50047	858	50479	877	
		39070-39082	744	42455	719	50048	856	50480	874	
		39090-39092	745	<b>43</b>		50051	861	50481	867, 869	
		39330	745	43200	647, 1180	50052	849, 850	50482	871	
		39350	746	43690	712, 713, 714, 715	50053	857, 860	50483	866	
		39355	746	43692	716	50054	765	50484	864	
		39400	747	<b>44</b>		50056	765	50485	808	
		39413-39415	747	44100	717	50057	766, 767, 768, 769	50500-50505	878	
		39430	748	44100-44106	717	50058	767, 783	50500-50525	878	
		39525-39532	679	44165	718	50059	766	50502-50505	878	
		39536-39537	677	44166-44181	718	50060	783	50503-50505	878	
		39545	677	44200	719	50069	784	50504-50505	878	
		39640	670	44210	719	50072	782	50506-50507	879	
		39652	670	44215-44216	720	50073-50075	782	50509	879	
		39655	674, 675	44220	719	50077	782	50511	879	
		39655-39828	671, 672, 673	44228	720	50100-50101	851	50513	879	
		39657	675	44229	720	50101	851, 852	50514	880	
		39658	678	44230	720	50108	855	50516	880	
		39658-39665	679	44267	721	50109	851	50518	880	
				44420	721	50120-50121	814	50520	880	
						50123	814	50521	881	
						50125	815	50522	881	
								50523-50524	881	

Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page
50525	881	51178	1128	51847	1077	52168	1001	52726	986
50535	837, 838	51180	1060	51848	1076	52169	1001	52727	988
50540	882, 883, 884, 885	51181	1060	51849	1076	52170	1001	52728	987, 988
50634	886	51183	1060	<b>52</b>		52174	1002	52729	987
50635	886	51184	1061	52002	914	52176	1002	52730	985
50637	774	51185	1061	52003	914	52178	1002	52731	983
50638	769, 775, 776	51186	1061	52005	914	52179	1002, 1003	52732	984
50639	770, 771, 772, 773, 776	51188	1060	52008	914	52183	1003	52733	980
50640	770, 771, 772, 774	51190	1061	52009-52017	915, 916	52185	1003	52736	980
50653	888	51192	1061	52010-52011	917	52190	1003	52737	981
50654	864, 866, 870, 871, 874, 876, 888, 889, 890	51194	1061, 1062	52012	916	52192-52193	1004	52739	981
50655	887	51196	1062	52013	916, 917	52199	1004	52740	982
50656	887, 889, 890, 891	51197-51198	1062	52015	916	52200	1004, 1005	52751	980
50657	888	51202	1062	52030	917	52204	1007	52752	985
50658	891, 892, 893	51204	1062	52034-52037	918	52205	1007	52762	983
<b>51</b>		51207	1062	52034-52038	918	52206	1005, 1007	52765	983
51000-51003	896	51215-51221	1064	52035	917	52207	1005, 1006, 1007	52767	983
51005	896	51219	1063	52036	918	52208	1007	52773	997
51013-51016	896	51221	1063	52038	919	52220	1008	52780	984
51028	896	51223-51224	1063	52039	919	52222	1008, 1009	52782	985
51030-51033	897	51224	1064	52039-52042	919	52223	1009	52783	984
51035-51038	897	51225-51234	1064	52040	920	52242	1013	52784	989
51036-51038	897	51237	1065	52043	920	52243	1012, 1013	52786	986
51041	897, 898	51243	1065	52043	920	52244	1011, 1012	52787	980
51042-51044	898	51246-51247	1065	52044	920, 921	52245	1013	52788	985
51044	899	51249	1065	52045	921	52247	1014	52790	984
51045-51047	899	51250	1065	52047	921	52248	1014, 1015	52791	987, 988
51056	900	51255	1065	52052	921	52249	1015	52792	981, 982
51056-51057	900	51256-51258	1066	52053	921	52250-52252	1016	52793	982
51059	900	51262	1066	52054	925	52254-52255	1016	52795	985
51060	898	51263	1066	52055-52059	923	52256	1016	52798	986
51062	899	51264	1066	52055-52065	922	52261	1017	52840-52842	989
51063	900	51266	1066	52056	923	52262	1017	52841	992, 993
51068	901	51267	1066	52064	923	52263	1018	52843	989
51069-51072	901	51268	1066	52065	923	52264-52266	1018	52844-52845	989
51080-51085	901	51269	1067	52070	923, 924	52279	1018	52847	989, 990
51096	901	51272	1067	52073	924	52281	1019	52848	990
51102	901, 902	51280-51282	1067	52081	924	52282	1019, 1020, 1021	52849	990
51104	902	51280-51284	1067	52082	924	52284	1021	52850	990
51105	902	51287	1068	52085	925	52286	1022, 1023, 1024	52851	991
51108-51109	903	51295-51296	1068	52090	963	52286-52287	1022	52852	991
51109	903	51297	1068	52091	964	52287	1023	52853	992
51110	903	51298	1068	52093	964	52291	1024	52854	997, 998
51113	903	51302	1068	52095	964	52292	1025	52855	962
51114	903	51308	1069	52100	391, 964	52293	1025	52856	992
51115	904	51310-51322	1069	52102	964	52400-52401	959	52857	996, 997
51116	904	51330-51337	1069	52104	965	52410-52411	959	52859	994, 995
51118	904	51335	1069	52106	965	52413	959	52950	998
51120	904	51402-51403	1070	52110	965	52420-52421	959	52951	998
51125	905	51405-51406	1070	52112	965	52423	960	52952	998
51126	905	51408	1071	52114-52116	966	52425	960	52953	999
51127	905	51409	1071	52118	966	52427	960	52955	999
51129	1123	51411-51414	1071	52120	967	52428	960	52960-52963	999
51130	1123	51415-51421	1072	52122	967	52430	960	52985	1121
51132	1124	51451	1072	52124-52127	967	52431	960	52995	1121, 1122
51135	1124	51452	1072	52128	967	52435	961	52997	1122
51136	1124	51457	1073	52130-52133	968	52436	961	52998	1122
51139	1124	51458-51459	1073	52134	968	52437	961	<b>53</b>	
51140	1124	51470	1073	52135	968	52440	961	53002-53020	1051
51143	1124	51490-51495	1073	52136	968, 969	52441	961	53021-53022	1052
51144	1125	51507-51508	1074	52137	969	52442	961	53027	1048
51145	1125	51510	1074	52138	969, 970	52445	961	53028	1050
51146	1125	51516	1074	52139	969, 970, 971	52450	962	53031	1026
51147	1125	51520	1074	52140	970, 971	52450-52855	962	53033	1050
51148	1125	51520-51530	1074	52141	972	52451	962	53033-53034	1051
51149	1126	51533	1074	52142	972, 973, 974, 975	52452	963	53038-53040	1028
51150	1125	51549-51551	1075	52143	974, 975, 976	52453	963	53045-53046	1030
51151	1126	51580-51582	1075	52144	972	52458	963	53054	1031
51152	1126	51586	1075	52146	973	52560	847, 848	53056	1032
51155	1126	51587	1075	52147	975	52620	848	53060-53062	1028
51156	1126	51640	1075	52150	925	52650	977	53063	1041, 1042
51158	1126	51648	1076	52151	925	52673	977	53066-53067	1031
51161	1127	51652	155	52152	965	52675	977	53068	1027
51162	1127	51657	156	52157	965	52686	996	53069	1028, 1029
51167	1127	51709	156	52161	999	52690	977, 978	53070	1029
51170-51172	1128	51804	1077	52162-52164	1000	52705-52708	979	53071	1030
		51805	1077	52163	1000	52710	979	53072	1030
		51810	1077	52165	1000	52714	979	53073	1031
		51845	1076	52166	1000	52722	986	53074	1032
		51846	1076	52167	1001	52724	986		

Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page
53075	1032	53436	1038	54101	1099, 1100	55760	1115	56750	1145
53076	1032	53440	1038	54130-54132	1100	55770	1115	56760	1145
53077	1035	53505	1057	54160-54161	1100	55781	1116	56761	1145, 1146
53078	1035	53508	1057	54165-54167	1101	55782	1116	56780	1146
53081	1035, 1036	53510	1059	54201	1101, 1102	55783	1116, 1117	56795	1146
53081-53090	1036	53529	1059, 1060	54202	1102	55784	1117	56800	1147
53091	1039, 1040	53550	1055	54318	1102	55788	1117	56804	1153
53092	1029	53562	1055	54320	1103	55789	1117	56806	1152
53093	1045	53564	1055	54345	1103	55798	1118	56807	1147
53095	1029, 1042, 1043	53570-53572	1053	54360	1103	55811	1118	56808	1153
53096	1043	53580	1056	54371	1104	55812	1118	56809	1154
53097	1044	53582	1055	54372	1104	55815	1119	56810	1154
53098	1044	53584	1056	54377	1104	55830	1119	56815	1155
53099	1045	53585	1056	54400-54401	1105	55834	1119	56820	1147
53100	1045, 1046	53586	1053	54420	1105	55835	1119	56830	1148
53101	1046	53592	1054	54435	1105	55842	1120	56835	1147
53102	1046	53605	1054			55843	1113	56871	1148, 1149
53103	1049	53610-53619	1054	<b>55</b>		55922	1111	56872-56878	1149
53104	1049	53631	1054	55006	909	55970-55972	1120	56879-56880	1150
53105	1049	53642	1078	55010	909			56882	1150
53106	1050	53643	1079	55013	909	<b>56</b>		56884	1151
53107	1050	53644	1079	55015	908	56007-56020	1128	56885	1151, 1152
53108	1052	53645	1079	55016	909	56026-56034	1128	56925-56932	1156
53109	1053	53646	1079	55019	910	56036	1129	56941	1156
53110	1053	53648	1079	55022	910	56056-56058	1129	56943	1156
53111	1055	53649	1080	55024	905	56060	1129	56944-56945	1157
53112	1056	53650	1080	55026	906	56061-56067	1129	56959	1157, 1158
53113	1056	53651	1080	55028	905	56070	1130	56962	1159
53114	1057	53655	1081	55045	906	56075	1130	56967	1159
53115	1058	53656	1080	55050	906	56076	1130		
53116	1058	53660	1081	55051	906	56077	1130	<b>57</b>	
53117	1058	53662	1081	55095	907	56080-56092	1131	57001	911
53118	1058, 1059	53664	1081	55100	907	56095	1131	57015-57020	910
53120	1048	53666	1081	55110	907	56100-56120	1131	57030-57032	910
53125	1059	53671	1082	55131	907	56191-56192	1131	57040	911
53127	1059	53672	1082	55135	908	56195	1132	57540-57542	911
53135	1038	53674	1082	55136	908	56196	1132	57550	911
53136-53148	1039	53676	1082	55200	908	56220	1132	57560	912
53137	1034	53680	1082	55205	908	56235	1132, 1133	57586	912
53138	1047	53681	1081	55210	908	56240	1133	57590	913
53155	1040	53685	1083	55400	756	56259	1133	57642	1078
53160	1060	53695	1083	55402	756	56266	1134	57644	1078
53195	1096, 1097	53700-53703	1083	55405	757	56270	1134	57660	1078
53197	1095	53704	1083	55408	757	56280	1134	57661	1078
53205-53210	1038	53705-53710	1083	55410	757	56305	1134		
53212	1038	53711	1083	55430	757	56318	1135	<b>58</b>	
53232	1026	53712-53713	1084	55435-55445	757	56320-56321	1135	58003	927, 928, 933, 935
53233	1027	53714	1084	55448	758	56345	1135	58003-58220	933
53236	1027	53717	1084	55460	758	56359	1136	58003-58272	932
53249-53250	1042	53718-53719	1084	55464	759	56377-56380	1136	58006	927
53251	1042	53720	1084	55470	759	56445	1137	58007	939
53254-53255	1043	53721	1085	55475	759	56451	1137	58009	929
53272-53274	1044	53722	1085	55476	760	56477	1137	58010-58011	928
53273	1044	53723	1085	55477	760	56490-56491	1137	58012-58016	929
53281	1041	53724	1085	55480	761	56495	1138, 1139	58020	930
53289	1041	53727	1085	55481	761	56496	1139	58024	931
53300	1041	53735	1086	55485	761	56501	1139	58030-58044	934
53302-53304	1041	53750	1086	55490	762	56550	1139, 1140	58057-58058	934
53311	1045	53751	1086	55495	762	56560	1140	58073-58074	934
53324	1045	53752	1086	55531-55551	1106	56570-56576	1140	58090-58106	934
53337	1046	53754	1086	55550-55579	1106	56580	1140	58120-58126	935
53340-53344	1047	53755-53757	1087	55560-55575	1106	56581	1141	58137-58138	935
53404-53405	1031	53790	1087	55562	1107	56582	1141	58142	935
53410	1031	53811	1087, 1088, 1089, 1090, 1091	55571-55580	1107	56610	1142	58149-58158	935
53411	1036	53815	1091	55576-55579	1107	56611	1142	58174	935
53412	1037	53820	1091	55578-55580	1107	56612	1142	58227-58236	936
53415	1034	53829	1092, 1093, 1094	55580	1113	56615	1142	58247-58248	936
53416	1034	53841	1094, 1095	55582	1110	56616	1142	58276	938
53417	1035, 1036	53842	1095	55583	1110	56618	1142	58276-58572	938
53418	1037	53844	1095	55585	1109, 1110	56630	1142, 1143	58278	936
53420	1033	53845-53846	1095	55605-55665	1111	56632	1143	58279	936
53421	1033			55670	1112	56645	1143	58280-58288	937
53422	1033	<b>54</b>		55671	1112	56659	1144	58299-58308	939
53425-53427	1033	54005	1098	55680	1112	56710	1144	58312-58320	940
53427	1034	54031	1098	55700	1113	56720	1144	58324-58332	940
53429	1034	54040-54041	1099	55705	1113	56725-56727	1144	58342	940
53430	1037	54067-54070	1099	55710	1114	56730	1144	58356-58358	941
53431	1037	54077	1099	55730	1114	56735	1144	58362	941
53432	1037	54079	1099	55733	1114	56737	1145	58420	941
53434	1037			55740	1115	56740	1145	58430-58440	941

Part. No.	Page
58450-58452	942
58454	942
58456	942
58463-58472	942
58474	942
58479-58488	939
58510-58522	943
58530-58536	943
58550	936
58574	944
58575	948
58577	945
58580	946
58584	944
58588	947, 948
58590-58604	950
58612-58620	951
58627-58652	951
58662-58664	952
58668	952
58674	952
58678	952
58682-58696	953
58712	953
58728	953
58744	953
58754-58755	954
58760	954
58764	954
58782-58792	954
58794-58808	950
58842-58857	955
58858-58872	955
58880	955
58882	950
58890-58898	949
58903-58909	956
58915-58921	957
58927	957
58930-58933	957
58936	956
58948-58951	957
58957	958
58960-58963	956
58972-58975	958
58978	958
58981	958
58984-58987	959
58990-58993	958
<b>60</b>	
60100	1162
60105	1162
60200	1163
60220	1163
60400	1164
60596	1164
<b>61</b>	
61124-61135	1164
61200	1165
61220	1165
61230	1165
61250	1165
61324-61334	1166
61380	1166
61404	1166
61950	1166
61955-61956	1166
61957-61958	1167
61964-61965	1167
<b>62</b>	
62001-62096	1168
62001-62400	1168
62300	1168
62400	1169

Part. No.	Page
<b>63</b>	
63700	1169
63800	1169, 1170
<b>69</b>	
69260	1291
69261	1291
69270-69272	1292
69275	1292
69276	1292
69281	1292
69290	1293, 1356, 1357, 1358
69294	1293
69320	1171
69320-69332	1171
69321	1171
69322-69323	1172
69324-69325	1172
69326	1172
69330	1172
69331	1171
69332	1171
69340	1173
69340-69352	1173
69341	1173
69342-69343	1173
69344-69345	1174
69346	1174
69347	1174
69350	1174
69355	1173
69357	1179
69358	1179
69360-69361	1174
69363	1175
69365	1175
69368-69369	1175
69371-69372	1175
69374-69375	1175
69377	1175
69380-69381	1176
69382	1176
69383-69384	1176
69386-69387	1176
69390	1176
69395	1177
69420-69425	1180
69430	1177
69430-69442	1177
69432	1177
69434	1177
69436	1177
69438	1177
69440	1178
69442	1178
69450-69451	1178
69450-69461	1178
69452-69453	1178
69454-69455	1179
69457-69461	1179
69470	1180
69471	1180
69472	1181
69480	1181
69485-69487	1181
69501-69505	1182
69501-69514	1183
69520-69521	1183
69530-69535	1184
69540	1184
69545	1184
69726	1185
69728	1185
69729	1185
69730	641
69748	1108
69751	1108
69752	1108, 1109

Part. No.	Page
69771	1186
69772	1186, 1187
<b>70</b>	
70002	1192
70005	1192
70016	1193
70018	1193
70020	1194
70021	1195
70025	1196
70052	1196
70056	1196
70105	1194
70125	1199
70126	1199
70141	1200
70142	1200
70145	1201
70146	1201, 1202
70147	1202
70148	1202
70170	1197, 1198
70171	1198
70175	1198, 1199
70301-70307	1203
70309	1203
70353-70354	1205
70371	1205, 1206, 1207
70372	1207
70373	1207, 1208
70374	1208
70378-71029	1205
70380	1210
70381	1210
70470	1209
70512	1211
70514	1212
70530	1212, 1213
70533	1213
70535	1214, 1215
70536	1214
70560	1359
70563	1215
70565	1215
70570	1216
70571	1216
70575	1217
70581	1217
70583	1218
70601	1218
70602-70609	1219
70620	1219
<b>71</b>	
71017	1220
71023	1228
71024	1221
71026	1223, 1226, 1227, 1229, 1231, 1233, 1234
71027	1224
71028	1232
71029	1225, 1227, 1228, 1232, 1234
71031	1235
71037	1229, 1230, 1231, 1233, 1234
71061	1235
71070	1236
71124	1236
71127	1237
71128	1237
71130	1238
71132	1238, 1239, 1240
71134	1242
71135	1242
71167	1241
71168	1241
71169	1240
71170	1241

Part. No.	Page
71172	1246
71175	1246
71180	1243
71182	1244
71187	1244
71200	1245
<b>72</b>	
72120-72124	1204
72140	1204
<b>75</b>	
75000	1248
75002	1248
75010	1249
75011	1249
75013	1249
75014	1249, 1250
75015	1250
75016	1251
75017	1251
75021	1251, 1252
75022	1252
75024	1253, 1254
75027	1255
75032	1256
75036	1258
75036-75048	1256, 1257
75037-75038	1258
75042-75048	1259
75044	1259
75045	1278
75050	1260
75050-75053	1261
75051	1276
75052	1276
75054	1276
75055	1276
75065-75066	1261
75066	1262
75068	1263
75068-75069	1262
75071	1263
75084	1263
75091	1264
75100	1264
75105	1265
75115	1265
75117-75119	1265
75121	1266
75135	1266
75136-75137	1266
75141	1264
75145-75149	1264
75150	1267
75151	1267
75152	1267
75153	1267
75154	1267
75156	1268
75160-75161	1269
75165-75168	1269
75169	1269
75171	1270
75172	1270
75174	1270
75175-75177	1268
75177-75178	1268
75178	1269
75179	1270, 1271
75180	1271
75201	1271
75202	1271
75220-75223	1272
75233-75240	1272
75240	1272
75255	1273
75265-75267	1273
75270	1273
75290	1274, 1275

Part. No.	Page
75390	1277
75406-75407	1277
75408	1277
75420	1277
75422	1278
75424	1278
75520-75524	1279
75523-75526	1280
75529	1281
75534	1282, 1283
75540	1283
75730	1285
75736	1284
75741	1285
75780	1355
<b>76</b>	
76001	1286
76003	1287
76006	1288, 1289
76008	1289
76011	1290
76030-76033	1293
76035-76039	1294
76040	1294
76042	1295
76043	1295
76044	1295
76045	1295, 1296
76050	1296
76051	1296
76052	1296
76057	1297
76060	1297
76061	1298
76064-76066	1298
76067	1300
76068	1299
76069	1299
76070-76072	1299
76079-76082	1299
76083	1301, 1358
76084	1301, 1302, 1303
76085-76088	1303
76089	1303
76090	1304
76091	1304
76092-76094	1304
76095	1304
76096	1305
76097	1305
76099	1305
76100	1305
76101	1306
76102	1306
76103	1306
76104	1306
76109	1306
76110	1307
76111	1307
76112	1307
76113	1307
76114	1308
76115	1308
76116	1308
76117	1309
76118	1309
76119	1170
<b>77</b>	
77000-77002	1314
77000-77003	1314, 1315, 1316, 1317, 1318, 1319
77001	1313
77001-77003	1311, 1312
77005	1310
77060	1320
77061	1320
77080	1322, 1323
77099	1321, 1322, 1323

Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page	Part. No.	Page
77100	1323	77142	1330	77181	1336	77300	1343	78048	1349
77110	1324	77157	1330	77185	1336	77301	1344	78050	1350
77110-77113	1324	77158	1331	77188	1337	77305	1344	78200	1351
77111	1325	77165	1331	77189	1337	77320	1345	78201-78207	1351
77120	1326	77166	1331	77192	1337	77350	1345	78220	1352
77120-77122	1326	77167	1330	77200	1338	77420	1346	78231	1352
77121	1326	77169	1332	77201	1338	77421	1341	78232	1353
77122	1326	77172	831	77203	1339			78233	1353
77136	1326	77174	1332, 1333	77206	1339, 1340	<b>78</b>		78236	1356, 1357, 1358
77137	1327, 1329	77175	1333	77208	1341	78010-78025	1347	78253	1353
77138	1329	77176	1333	77210	1343	78035	1347	78256	1354
77139	1327	77178	1334	77232	1342	78042	1347	78260	1355
77140	1327, 1328	77179	1334, 1335	77236	1342	78043	1348	78300	1354
77141	1329, 1330	77180	1335	77239	1342	78046	1348	78350	1354







Part. No.	Prod. Gr.	Part. No.	Prod. Gr.	Part. No.	Prod. Gr.	Part. No.	Prod. Gr.
52013	531	52751	590	53430 010	544	57	
52015	569	52752	584	53430 600	595	57001	598
52017	526	52762	542	53431 005	544	57015	531
52030	534	52773	580	53431 600	595	57030	548
52034	594	52780	533	53432	557	57040	557
52035	531	52782	590	53434	595	57586	555
52037	526	52783	580	53436	544	57642	529
52038	569	52784	584	53505	580	57644	528
52039	531	52786	590	53508	597	57660	529
52040	569	52788	584	53510	543	57661	566
52042	530	52790	533	53570	597		
52044	534	52840	580	53580	593	58	
52045	569	52841	590	53582	543	58003	582
52047	530	52842	580	53585	597	58007	534
52054	534	52843 045	571	53592	593	58009	542
52055	594	52847 702	540	53605	598	58010	526
52056	530	52848	571	53644	566	58011	586
52059	526	52856	542	53645	552	58012	534
52064	531	52859	571	53646	566	58016	530
52065	569	52950	542	53660	552	58020	569
52070	530	52985	576	53695	596	58024	531
52073	569	52995 110	580	53700	524	58030	582
52081	530	52995 270	598	53704	580	58032	530
52082	531	52995 300	580	53705 075	524	58036	569
52085	530	52995 500	598	53705 500	596	58040	531
52095	532	52997	569	53711	550	58042	582
52114	590	52998	580	53717	551	58044	531
52118	534			53722	552	58057	582
52120	533	53		53723	598	58058	569
52124	532	53002	596	53727	552	58073	582
52130	544	53002	596	53727	552	58074	569
52134	532	53007	597	53750	546	58091	582
52135	533	53028	543	53751 020	552	58092	582
52139 015	590	53031	572	53751 500	597	58106	569
52139 370	542	53033	519	53752	551	58120	582
52139 500	590	53038	597	53755	553	58122	569
52140	533	53054	597	53790	580	58126	531
52142 005	590	53056	543	53811	554	58137	582
52142 445	533	53060	597	53815	596	58138	569
52143 906	590	53063	535	53820	580	58149	582
52144 030	532	53066	597	53829	554	58150	530
52146	590	53068	535	53841	528	58154	569
52150 010	534	53092	597	53842	529	58158	531
52150 155	530	53095 005	535	53844	554	58185	582
52150 400	531	53095 130	535			58186	569
52151	534	53095 200	593	54		58220	531
52152	557	53095 205	535	54005	586	58227	582
52157	530	53096	597	54031	560	58228	530
52161	533	53097	535	54201	586	58232	569
52168	526	53125	597	54202	561	58236	531
52179	530	53127	543	54318	563	58247	582
52183	526	53135	597	54400	564	58248	569
52190	534	53137 010	531	54435	562	58259	582
52199	530	53137 010	597			58260	530
52200	594	53137 500	597	55		58264	569
52204	556	53138 010	535	55006	570	58268	531
52205	531	53138 100	598	55400	598	58272	586
52206	537	53145	597	55402	538	58276	542
52208	531	53155	569	55480	598	58278	582
52220	536	53160	543	55481	538	58279	526
52222	537	53195	561	55531	565	58280	569
52223	556	53197	593	55570	565	58284	530
52243	594	53205	543	55760	565	58288	531
52245	542	53232	597	55970	567	58299	582
52247	556	53233	593			58304	569
52249	536	53236	597	56		58308	531
52261	556	53251	593	56007	575	58312	530
52262	569	53254	597	56056	598	58316	569
52279	531	53272	544	56060	575	58320	531
52286	569	53273	535	56061	598	58324	569
52287	531	53274	544	56067	575	58332	531
52291	556	53281	597	56191	598	58342	569
52293	531	53289	544	56196	575	58356	582
52400	540	53300 030	535	56550	566	58358	569
52560	580	53300 510	544	56610	576	58362	531
52620	530	53302	597	56611	558	58420	569
52650	533	53311	544	56618	576	58430	582
52705	580	53324	545	56645	579	58436	569
52722	533	53340	546	56659	576	58440	531
52724	584	53404	557	56710	598	58450	582
52726	590	53410	543	56761	566	58452	569
52727	542	53411 020	569	56780	565	58456	531
52728 010	533	53411 030	530	56795	576	58463	582
52728 530	584	53411 090	544	56815	568	58464	530
52729	533	53412 125	597	56820	576	58468	569
52730	590	53415	595	56925	577	58472	531
52731	533	53416	595	56959	578	58479	582
52732	580	53417	597			58480	530
52733	533	53418	593				
52740	580	53420	543				
		53421	569				
		53422 175	530				
		53427 010	530				
		53427 020	517				
		53429	530				

Part. No.	Prod. Gr.	Part. No.	Prod. Gr.	Part. No.	Prod. Gr.	Part. No.	Prod. Gr.
58484	569	<b>61</b>		70536	731	75141	- 75149 790
58488	531	61124	- 61135 610	70560	786	75150	- 75153 758
58510	582	61200	- 61404 611	70563	707	75154	753
58512	530	61950	693	70571 046	731	75156	758
58516	569	61955	- 61956 694	70571 048	- 70583 224 745	75160	- 75172 754
58520	- 58522 531	61957	- 61958 690	70601	- 70609 749	75174	753
58530	582	61964	- 61965 694	70620 010	731	75175 060	- 75178 115 790
58532	569			70620 100	- 70620 130 732	75178 200	758
58536	531	<b>62</b>				75179	- 75180 753
58550	- 58559 582	62001	- 62096 620	<b>71</b>		75201	790
58560	530	62300	- 62400 622	71017	734	75202	753
58564	569			71023	700	75220	- 75267 755
58568	531	<b>63</b>		71024 220	- 71024 270 734	75290	745
58572	586	63700	- 63800 601	71024 300	731	75390	- 75424 758
58574	582			71024 310	- 71024 330 730	75520	- 75534 759
58575	526	<b>69</b>		71026	731	75540	760
58577	542	69260	- 69355 690	71027 007	746	75730	- 75780 759
58580	530	69357	- 69358 694	71027 040	- 71027 572 745		
58584	569	69360	- 69420 693	71028	704	<b>76</b>	
58588	531	69425	692	71029	715	76001	- 76006 792
58590	582	69430	- 69442 690	71031 005	731	76008	- 76011 761
58596	530	69450	- 69461 693	71031 030	- 71031 040 704	76030	- 76039 763
58600	569	69470	- 69487 695	71037 010	- 71037 040 745	76040	- 76042 766
58604	531	69470	- 69487 695	71037 110	- 71037 120 746	76043	792
58612	530	69501	- 69545 691	71037 210	- 71037 610 745	76044	795
58616	569	69590	- 69600 650	71061	- 71070 717	76045	- 76050 763
58620	531	69605	240	71124	715	76051	795
58627	582	69606	- 69608 650	71127 021	- 71127 045 745	76052	- 76066 763
58632	569	69610	255	71127 400	746	76067	795
58644	530	69630	- 69650 650	71128	731	76068	763
58648	569	69651	542	71130	793	76069	762
58652	531	69657 020	- 69772 510 650	71132	733	76070	- 76082 766
58658	582	69772 600	651	71134	793	76083 010	- 76083 450 792
58662	582	69772 700	- 69797 010 650	71135	733	76083 900	- 76083 912 763
58664	569			71167	700	76084 014	- 76084 028 762
58668	531	<b>70</b>		71168	707	76084 130	- 76084 285 792
58674	- 58682 582	70002	731	71169	745	76084 440	- 76084 480 762
58688	530	70005 005	- 70005 030 745	71170	731	76084 504	- 76084 732 792
58696	- 58744 531	70005 400	746	71172	- 71175 745	76084 740	- 76084 928 766
58754	- 58755 582	70016	731	71180 012	- 71180 100 731	76085	- 76097 763
58760	531	70018	704	71180 110	- 71180 210 732	76099	762
58764	569	70020 110	- 70020 220 745	71182	- 71187 715	76100	792
58782	582	70020 400	746	71200	703	76101	766
58784	530	70021	731	<b>72</b>		76102	- 76104 762
58788	569	70025 018	700	72120	- 72124 749	76109	792
58792	531	70025 019	- 70025 219 705	72140	768	76110	766
58794	582	70052	700			76111	- 76112 792
58800	530	70056	794	<b>75</b>		76113	- 76114 762
58804	569	70105 005	731	75000	- 75014 750	76115	766
58808	531	70105 020	- 70105 040 704	75015	790	76116	792
58836	569	70125	- 70136 706	75016	751	76117	- 76119 762
58840	531	70141	712	75032 010	- 75032 015 728	<b>77</b>	
58842	582	70142	745	75032 110	752	77000	- 77003 772
58848	530	70145	- 70148 704	75032 210	- 75032 220 738	77005	794
58852	569	70170 019	- 70170 098 731	75036	748	77060	776
58856	- 58857 531	70170 510	- 70170 520 732	75037	728	77080	- 77111 774
58858	582	70171 038	- 70171 070 745	75038	738	77137	777
58864	530	70171 400	746	75042 040	- 75042 055 728	77139 010	- 77140 040 775
58868	569	70175	732	75042 116	- 75042 125 748	77140 060	- 77140 108 770
58872	- 58880 531	70301	731	75044	747	77141	- 77169 775
58874	- 58883 582	70303	- 70307 732	75045	773	77172	773
58882	530	70309	745	75048 050	- 75050 020 748	77174	- 77210 775
58886	569	70353	- 70354 700	75050 190	- 75050 200 752	77232	781
58890	531	70371 002	- 70371 080 731	75050 500	- 75050 980 728	77236	775
58894	586	70371 100	732	75051	- 75052 758	77239	781
58898	530	70372	731	75053	738	77300	- 77350 706
58903	530	70373 221	- 70373 500 745	75054	- 75055 758	77421	771
58909	531	70373 601	- 70373 620 746	75065	738	<b>78</b>	
58915	530	70374	704	75066 004	- 75066 031 752	78010	- 78025 794
58918	- 58927 531	70378	715	75066 041	747	78035	- 78043 780
58930	530	70380	- 70470 707	75066 110	728	78046	794
58933	531	70512 010	- 70512 120 745	75066 215	- 75066 225 752	78048	- 78050 785
58936	- 58948 530	70512 200	746	75066 310	- 75066 420 728	78200	- 78207 782
58951	- 58957 531	70512 304	- 70512 712 745	75068	- 75071 748	78200	- 78207 782
58960	530	70514 011	- 70514 021 731	75084 020	- 75084 030 728	78220	717
58963	531	70514 204	- 70514 312 732	75084 220	730	78231	- 78232 782
58972	- 58981 530	70530 010	- 70530 021 731	75091 010	728	78233	783
58975	530	70530 100	- 70530 590 732	75091 210	730	78236	703
58984	530	70533	704	75100	752	78253	- 78256 748
58987	531	70535 100	745	75105	- 75121 754	78260	783
58987	530	70535 401	746	75135	- 75137 758	78300	748
58990	530	70535 504	- 70535 624 745				
58993	531						
<b>60</b>							
60100	- 60400 601						
60596	692						

DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.
	9	11672	338	11027		371	13274		EN	397	55811	844	15124	
	9	11673	338	11028		371	13277			403	19014	844	15159	
EN	131-1	50260	338	11029		371	13279			403	19016	844	15170	
	133	52005	338	11031		371	13281		EN	471	55582	844	15176	
EN	149	55834	338	11033		371	13286			508	26195	844	15178	
EN	149	55835	338	11037		371	13287			523	22285	844	15188	
EN	166	55605	338	11039		371	13288		ISO	525	69320	844	15193	
EN	166	55610	338	11040		371	13290		ISO	525	69321	844	15195	
EN	166	55620	338	11041		371	13291		ISO	525	69322	844	15214	
EN	166	55640	338	11042		371	13305		ISO	525	69324	844	15220	
EN	166	55650	338	11043		371	13306		ISO	525	69326	844	15222	
EN	166	55655	338	11044		371	13307		ISO	525	69330	844	15223	
EN	166	55656	338	11046		371	13309		ISO	525	69331	844	15238	
EN	166	55660	338	11047		371	13311		ISO	525	69332	844	15241	
EN	166	55664	338	11050		371	13312		ISO	525	69340	844	15242	
EN	166	55665	338	11155		371	13313		ISO	525	69341	844	15261	
EN	166	55670	338	11156		371	13318		ISO	525	69342	844	15269	
EN	166	55710	338	11157		371	13319		ISO	525	69343	844	15270	
EN	166	55811	338	13400		371	13348		ISO	525	69344	844	15271	
EN	166	55843	338	13401		371	13358		ISO	525	69346	844	15272	
EN	169	55705	338	13402		371	13400		ISO	525	69347	844	15274	
EN	169	55710	338	13403		371	13401		ISO	525	69350	844	15275	
EN	175	55700	340	11055		371	13402		ISO	525	69355	844	15278	
	206	11602	340	11056		373	11438		ISO	525	69360	844	15280	
	206	11603	340	11057		373	11439		ISO	525	69361	844	15290	
	206	11604	340	11058		373	11442		ISO	525	69363	844	15300	
	208	11636	340	11059		373	11445		ISO	525	69365	844	15311	
	208	11641	340	11060		373	11449		ISO	525	69368	844	15312	
	208	11642	344	11410		373	11451		ISO	525	69369	844	15319	
	208	11643	345	11070		373	11452		ISO	525	69371	844	15361	
	212	11622	345	11071		373	11454		ISO	525	69372	844	15366	
	212	11624	345	11074		374	13143		ISO	525	69374	844	15901	
	212	11627	345	11076		374	13144		ISO	525	69375	844	15902	
	212	11628	352	13010		374	13320		ISO	525	69377	844	15904	
	212	11628	352	13012		374	13324		ISO	525	69380	844	15905	
	212	11630	352	13013		374	13332		ISO	525	69381	844	15906	
	212	11632	352	13014		374	13334		ISO	525	69382	844	15907	
	212	11633	352	13015		374	13335		ISO	525	69383	844	15908	
	212	11634	352	13017		376	13052		ISO	525	69384	844	15914	
	212	11734	352	13063		376	13056		ISO	525	69386	845	15350	
	212	11737	352	13260		376	13057		ISO	525	69387	845	15351	
EN ISO	228-2	32750	352	13261		376	13058		ISO	525	69430	847	14312	
EN ISO	228-2	32752	352	13395		376	13100		ISO	525	69432	850	15800	
EN ISO	228-2	32753	352	13396		376	13106		ISO	525	69434	850	15804	
EN ISO	228-2	32754	352	13399		376	13107		ISO	525	69436	850	15806	
EN ISO	228-2	32755	352	13403		376	13109		ISO	525	69438	850	16521	
	229-1	32635	357	13059		376	13115		ISO	525	69440	851	15792	
	229-2	32636	EN	363	55922	376	13117		ISO	525	69442	851	16525	
	230-1	32640		371	13052	376	13118		ISO	525	69470	856	14332	
	230-2	32641		371	13056	376	13119		ISO	525	69471	859	11606	
	238-1	21269		371	13057	376	13128		ISO	525	69472	862	31002	
	238-1	21313		371	13058	376	13130		EN	559	54077	862	31003	
	238-1	21619		371	13083	376	13136			659	52134	862	31004	
	248	52095		371	13088	376	13145			787	26200	862	31006	
	311	11670		371	13100	376	13246			806	22104	862	31007	
	317	21160		371	13105	376	13247			806	22107	862	31012	
	327	15013		371	13106	376	13254			806	22109	862	31013	
	327	15020		371	13107	376	13264			806	22110	862	31014	
	327	15023		371	13108	376	13270			806	22112	862	31065	
	327	15102		371	13113	376	13277			806	22113	862	31079	
	327	15105		371	13115	376	13279			806	22114	862	31080	
	327	15900		371	13116	376	13281			807	22121	862	31083	
	333	11001		371	13118	376	13283			807	22122	862	31087	
	333	11002		371	13119	376	13288		EN	812	55815	862	31088	
	333	11004		371	13128	376	13305		EN	818-2	77208	862	31091	
	333	11005		371	13130	376	13307			837	52070	862	31092	
	333	11007		371	13134	376	13308			837	52073	862	31119	
	333	11008		371	13136	376	13312			838	52055	862	31145	
	333	11010		371	13145	376	13319			838	52056	862	31147	
	333	11011		371	13203	376	13348			838	52059	862	31150	
	333	11012		371	13246	376	13358			838	52064	862	31151	
	333	11014		371	13247	376	13400			838	52065	862	31152	
	334	11498		371	13250	376	13401			842	14314	862	31154	
	335	11500		371	13251	376	13402			844	15053	862	31155	
	335	11501		371	13253	377	13532			844	15055	862	31157	
	335	11507		371	13254	EN	379	55730		844	15061	862	31163	
	335	11512		371	13264	EN	379	55733		844	15063	862	31167	
	338	11020		371	13266		382	13434		844	15112	862	31169	
	338	11021		371	13267	EN	388	55531		844	15116	862	31170	
	338	11024		371	13270	EN	388	55550		844	15118	862	31172	
	338	11026		371	13271	EN	388	55579		844	15119	862	31173	

DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.
862		31174	866		37201	EN	1492-1	77192	2270		33344	3122		58993
862		31176	874-1		37420	EN	1492-2	77200	2270		33345	3123		58149
862		31216	874-1		37425	EN	1492-2	77201	2270		33346	3123		58150
862		31240	874-1		37435	EN	1598	55740	2270		33347	3123		58154
862		31276	874-1		37436	EN	1757-3	50267	2270		33348	3123		58158
862		31278	874-1		37450	EN	1757-3	50268	2275		36189	3123		58227
862		31279	874-1		37451		1810	23349	2280		32670	3123		58228
862		31280	874-2		37550		1810	52100	2280		32690	3123		58232
862		31281	874-2		37551		1810	52102	2280		32700	3123		58236
862		31282	875-1		35278		1814	13549	2281-1		32703	3123		58247
862		31283	875-1		38051		1814	13551	2281-2		32703	3123		58248
862		31284	875-1		38052		1833	15814	2283-1		32704	3123		58463
862		31285	875-1		38058		1833	15815	2283-2		32704	3123		58464
862		31288	875-1		38059		1834	14103	2285-1		32675	3123		58468
862		31295	875-1		38060		1834	14105	2285-1		32691	3123		58472
862		31296	875-1		38061		1837	14002	2285-1		32705	3123		58510
863-1		31330	875-1		38062		1837	16385	2299-1		32676	3123		58512
863-1		31331	875-1		38063		1838	14004	2299-1		32692	3123		58516
863-1		31342	875-1		38073		1838	14008	2299-1		32706	3123		58520
863-1		31344	875-1		38074		1866	11480	ISO	2351-1	52843	3123		58521
863-1		31345	875-1		38111		1866	11483	ISO	2351-1	52844	3123		58522
863-1		31348	875-1		38125		1866	11489	ISO	2351-1	52845	3123		58530
863-1		31366	875-1		38126		1869	11061	EN ISO	2503	54071	3123		58532
863-1		31401	875-1		38135		1869	11063	VDI	2700	77206	3123		58536
863-1		31405	875-2		35281		1880	14193	ISO	2936	52114	3123		58550
863-1		31406	876		35348		1880	14195	ISO	2936	52116	3123		58782
863-1		31407	876		35350		1880	14207	ISO	2936	52120	3123		58784
863-1		31408	876		35370		1880	14208	ISO	2936	52124	3123		58788
863-1		31409	876		35444		1880	14233	ISO	2936	52127	3123		58792
863-1		31414	876		35461		1880	14242	ISO	2936	52128	3123		58842
863-2		31450	876		35462		1880	14244	ISO	2936	52134	3123		58848
863-2		31633	876		35466		1880	14245	3017-1		75406	3123		58852
863-3		31464	877		38402		1880	14989	3017-1		75407	3123		58856
863-3		31466	877		38420		1880	14990	3110		52009	3123		58857
863-3		31471	877		38421		1880	14991	3110		52012	3123		58858
863-3		31475	877		38422		1880	14992	3110		52013	3123		58864
863-3		31477	877		38423		1897	11051	3110		52015	3123		58868
863-3		31490	877		38440		1897	11052	3110		52017	3123		58872
863-3		31530	877		38441		1897	11053	3113		52034	3123		58930
863-3		31531	877		38442		1897	11086	3113		52036	3123		58933
863-3		31566	877		38443		1897	11087	3113		52037	3123		58948
863-3		31567	878		33000		1897	11088	3113		52038	3123		58951
863-3		31577	878		33001		1898	11120	3113		52039	3123		58957
863-3		31610	878		33002		1899	11054	3113		52040	3123		58978
863-3		31620	878		33003		2079	23210	3113		52042	3123		58984
863-3		31630	878		33004		2079	32650	3113		52043	3123		58987
863-4		31635	878		33011		2080	23080	3115		52780	3124		58030
863-4		31640	878		33020		2080	23083	3117		52150	3124		58032
863-4		31678	878		33037		2080	32651	3118		52081	3124		58036
863-4		31685	878		33050		2082	23130	3118		52082	3124		58040
863-4		31688	878		33051		2084	23135	3122		58003	3124		58042
863-4		31690	878		33052		2084	23136	3122		58009	3124		58044
863-4		31694	878		33075		2084	23140	3122		58185	3124		58299
863-4		31700	878		33077		2179	11674	3122		58186	3124		58304
863-4		31704	878		33100		2179	11678	3122		58216	3124		58308
863-4		31710	878		33113		2180	11675	3122		58220	3124		58312
863-4		31714	878		33114		2181	13020	3122		58259	3124		58316
863-4		31720	878		33115		2181	13022	3122		58260	3124		58320
863-4		31724	879-1		33160		2181	13023	3122		58264	3124		58324
863-4		31730	879-1		33161		2181	13035	3122		58268	3124		58328
863-4		31734	879-1		33163		2185	21102	3122		58272	3124		58332
863-4		31740	885		14123		2187	21114	3122		58479	3124		58612
863-4		31745	885		14131		2187	21115	3122		58480	3124		58616
863-4		31746	894		52002		2245	32490	3122		58484	3124		58620
863-4		31750	895		52008		2245	32491	3122		58488	3124		58627
863-4		31780	896		52176		2245	32495	3122		58577	3124		58632
863-4		31784	896		52178		2245	32496	3122		58794	3124		58644
863-4		31800	896		52179		2246	32490	3122		58800	3124		58648
863-4		31802	900		52185		2246	32491	3122		58804	3124		58652
863-4		31814	904		52192		2247	32490	3122		58808	3124		58915
863-4		31816	905		52193		2247	32491	3122		58836	3124		58918
863-4		31825	1041		51180		2250	32605	3122		58840	3124		58921
863-4		31828	1041		51184		2250	32607	3122		58883	3124		58972
863-4		31870	1041		51188		2250	32608	3122		58886	3124		58975
863-4		31910	1042		51194		2254	32609	3122		58890	3125		52164
863-4		31915	ISO	1173	58174		2269	32481	3122		58894	EN ISO	3452-2	69780
863-4		31917	ISO	1173	58474		2270	33310	3122		58898	EN ISO	3452-2	69781
863-4		31919		1282	56191		2270	33340	3122		58936	EN ISO	3650	32050
866		37086		1282	56192		2270	33341	3122		58960	EN ISO	3650	32051
866		37087		1283	56235		2270	33342	3122		58963	EN ISO	3650	32052
866		37200	EN	1492-1	77188		2270	33343	3122		58990	EN ISO	3650	32053

DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.	DIN	Norm	Part. No.
EN ISO	3650	32072	5234	53430		6360	23145		8024	17850		40432	13228	
EN ISO	3650	32073	5234	53431		6366	23200		8024	17851		40434	13491	
EN ISO	3650	32077	5234	53432		6367	23185		8024	17852		55027	22381	
EN ISO	3650	32079	5234	53434		6368	23190		8024	17853		55027	22385	
EN ISO	3650	32082	5234	53436		6374	22289		8024	17854		55027	22386	
EN ISO	3650	32086	5254	53135		6379	26197		8024	17855		55027	22393	
EN ISO	3650	32087	5254	53145		6391	23295		8033	76003		55027	22394	
EN ISO	3650	32103	5254	53148		6450	51280		8033	76006		55027	22411	
EN ISO	3650	32104	5254	53155		6450	51283		8033	76008		55027	22419	
EN ISO	3650	32109	5256	53135		6450	51284		8033	76011		55027	22425	
EN ISO	3650	32110	5256	53136		6451	51255		8037	11160		55027	22426	
EN ISO	3650	32112	5256	53137		6451	51258		8037	11162		55027	22427	
EN ISO	3650	32122	5256	53155		6453	51255		8039	11180		55027	22505	
EN ISO	3650	32123	5260	52767		6453	51256		8039	11185		55029	22381	
EN ISO	3650	32124	5264	52134		6455	51263		8039	11186		55029	22386	
EN ISO	3650	32125	5264	52765		6458	51280		8041	11163		55029	22394	
EN ISO	3650	32126	5265	52732		6458	51281		8089	11626		55029	22510	
EN ISO	3650	32169	5265	52733		6458	51282		8089	11772	EN	60454	69772	
EN ISO	3650	32170	5265	52736		6475	51196		8093	11726	EN	60900	52003	
EN ISO	3650	32178	5265	52737	EN ISO	6506-3	42365		8093	11730	EN	60900	52054	
EN ISO	3650	32179	5265	52751	EN ISO	6507-3	42365		8094	11779	EN	60900	52161	
EN ISO	3650	32187	5299	77174	EN ISO	6508-3	42365		8350	53705	EN	60900	52727	
EN ISO	3650	32188	ISO	5745	53038	6518	15461		8350	53706	EN	60900	52728	
4952	17068	ISO	5745	53040	6527	16785		8350	53710	EN	60900	52784		
4953	17087	ISO	5745	53045	6527	16787		8374	11100	EN	60900	52786		
4954	17089	ISO	5745	53046	6527	16788		8374	11101	EN	60900	52791		
4960	17081	ISO	5745	53054	6527	16790		8376	11112	EN	60900	52854		
4961	17084	ISO	5745	53060	6527	16792		8377	11115	EN	60900	53031		
4963	17091	ISO	5745	53062	6527	16793		8378	11106	EN	60900	53040		
4963	17092	ISO	5745	53066	6527	16794	ISO	8764-1	52134	EN	60900	53046		
4964	17052	ISO	5745	53067	6527	16840	ISO	8764-2	52782	EN	60900	53062		
4964	17054	ISO	5745	53069	6527	16845	ISO	8764-2	52783	EN	60900	53067		
4964	17062	ISO	5745	53070	6527	16847	ISO	8764-2	52787	EN	60900	53068		
4964	17064	ISO	5745	53071	6527	16850	ISO	8764-2	52788	EN	60900	53069		
4965	17075	ISO	5745	53072	6527	16866	ISO	8764-2	52790	EN	60900	53070		
4971	17601	ISO	5745	53073	6527	16868	ISO	8764-2	52792	EN	60900	53072		
4972	17606	ISO	5745	53092	6527	16878	ISO	8764-2	52793	EN	60900	53081		
4973	17641	ISO	5746	53068	6527	16879	ISO	8976	53411	EN	60900	53092		
4974	17646	ISO	5746	53232	6527	16880	ISO	8976	53415	EN	60900	53095		
4976	17616	ISO	5746	53233	6527	16887	ISO	8976	53416	EN	60900	53100		
4978	17626	ISO	5746	53236	6528	16740	ISO	8976	53418	EN	60900	53101		
4980	17631	ISO	5748	53281	6537	11158	ISO	9242	53300	EN	60900	53102		
4980	17633	ISO	5748	53289	6537	11159	ISO	9243	53302	EN	60900	53108		
4981	17636	ISO	5749	53249	6537	11170	ISO	9243	53304	EN	60900	53110		
4981	17638	ISO	5749	53250	6537	11171	EN	10226	32745	EN	60900	53232		
4983	17825	ISO	5749	53254	6537	11172	EN	10226	32746	EN	60900	53236		
4983	17826	ISO	5749	53255	6537	11173	ISO	10897	23291	EN	60900	53250		
4983	17830		6314	26120	6537	11174	ISO	10897	23293	EN	60900	53255		
4983	17831		6314	26136	6537	11175	EN	12157	56445	EN	60900	53572		
4983	17832		6315	26125	6537	11176	EN	12195-1	77206	EN	60900	53605		
4983	17833		6315	26130	6537	11183		13157	55585	EN	61010-1	75021		
4983	17834		6315	26132	6537	11184		13164	55585	EN	61010-1	75024		
4983	17835		6316	26138	6537	11188		13169	55585	EN	61243-3	75017		
4983	17836		6318	26145	6539	11150	EN	14183	50260	EN	61243-3	75027		
4983	17837		6319	26208	6539	11151	ISO	15488	23320	EN	61557-7	75021		
4983	17838		6323	26196	6539	11153	ISO	15488	23322		65253	52144		
4983	17839		6327-1	23092	6911	52144	ISO	15488	23324		68877	50126		
4983	17840		6327-4	23098	7200	53815	EN ISO	20345	55970		68877	50127		
4983	17859		6328	21155	7239	51190	EN ISO	20345	55971		68877	50130		
4983	17860		6329	21150	7250	51295	EN ISO	20345	55972		69880	22700		
4983	17924		6330	26206	7250	51296		22417	52170		69880	22701		
4987	12880		6331	26206	7261	51490		22568	13399		69880	22702		
4987	12882		6340	26208	7261	51492	EN	22568	13410		69880	22710		
4987	12885		6346	26257	7261	51493	EN	22568	13412		69880	22715		
4987	12890		6349	21292	7261	51494	EN	22568	13417		69880	22716		
4987	12895		6349	21293	7261	51495	EN	22568	13418		69880	22721		
5111	51246		6350-1	22381	7261	51510	EN	22568	13421		69880	22725		
5112	51249		6350-1	22385	7263	51533	EN	22568	13440		69880	22755		
5117	51103		6350-1	22386	7355	77169	EN	22568	13442		69880	22766		
5117	51104		6350-1	22393	7437	52726	EN	22568	13445		69880	22770		
5117	51105		6350-1	22394	7437	52728	EN	22568	13446		69880	22775		
5128	51204		6350-1	22411	7438	52784	EN	22568	13447		69880	22787		
5133	51192		6350-1	22419	7438	52786	EN	22568	13450		69880	22798		
5135	51247		6350-1	22426	7438	52791	EN	22568	13460		69880	22912		
5156	13207		6350-1	22427	7444	52047	EN	22568	13470		82101	77174		
5156	13378		6350-1	22451	7445	52161	EN	22568	13559					
5156	13379		6354	23107	7446	52003	EN	24230	13466					
5157	13045		6355	23107	7447	52054	EN	24231	13480					
5157	13046		6358	23155	8024	17846	EN	24231	13484					
5200	52795		6358	23156	8024	17847	EN	24231	13487					
5208	52798		6359	23330	8024	17848	EN	24231	13488					