Safety and Technical Manual

Sure-Grip® 3-jaw Power Chucks

Mounting and Operating
Calculating Gripping Force
Maintenance
Parts Lists

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Warranty

The seller warrants to the original Buyer only those products manufactured by the Seller or through an authorized representative and used by the original Buyer within limits of rated and normal usage will be free from defects which are not commercially acceptable in material and workmanship for the following periods, measured from the date of shipment: 6 months for repair parts purchased after the original warranty expires; 12 months for all models of Hardinge® Sure-Grip® 3 Jaw Power Chucks. Hardinge will not sell Hardinge Sure-Grip chuck bodies as a replacement part. If this part requires replacement the complete chuck must be returned to Hardinge for rebuilding.

Chapter 1

Safety Information

Instructions

Maintenance

Parts Lists

NOTES:

General Safety Information

Before placing the Hardinge® Sure-Grip® Power Chuck on your machine tool, thoroughly read this manual and understand the information. If you are uncertain about any of the information, see your immediate supervisor. Also make certain that you understand the information in your machine tool operator's, programmer's and maintenance manuals.

NOTICE

Damage resulting from misuse, negligence or accidents
is not covered by the Hardinge Sure-Grip Power Chuck Warranty.

Information in this document is subject to change without notice.

In no event will Hardinge Inc. be responsible for indirect or consequential damage resulting from the use or application of the product, or any of the information in this document.

This product is only to be used by trained machinists skilled
in the use and operation of power chucks on metal cutting machines.

Machine Tool Setup/Operators Responsibilities:

- Hazards may arise from the characteristics of the workpiece and machine used with a given workholding chuck even if the specific requirements in this manual are met. The user shall therefore consider such characteristics of workpieces (dimensions, mass and shape), and of machines (operating speed, feed and depth of cut) in order to remove or reduce the hazard.
- The maximum permissible speed for the specific machining shall be determined by the user on the basis of the clamping forces required. This speed shall not exceed the maximum rotational speed of the workholding chuck.
- For special top jaws, the user should calculate the dynamic clamping force for a particular workholding chuck according to the one method outlined in this manual. Other methods are available from publications referred to on page 118.
- Static clamping force measuring devices should be used to check maintenance conditions at regular intervals according to the information in this manual.
- Residual risks may arise from a failure to achieve a satisfactory quality of rotational balance.
- To prevent excessive force being applied to a particular workholding chuck, the actuating force available from a machine may need to be reduced.

– WARNINGS –

Warnings must be followed carefully to avoid the possibility of personal injury and or damage to the chuck, machine tool, tooling, or the workpiece. In this publication the term "personal injury" should be understood to include severe personal injury, possibly resulting in death.

– CAUTIONS –

Cautions must be followed carefully to avoid the possibility of damage to the chuck, machine tool, tooling, or workpiece.

– NOTES –

Notes contain supplemental information.

For Safe Operation of Hardinge® Sure-Grip® Thru-Hole Power Chucks

Please carefully read this manual, paying close attention to the safety instructions, warnings and cautions before installation and operation of your chuck. Hardinge will not assume responsibility for damage or accidents caused by the misuse of a Hardinge Sure-Grip Chuck through noncompliance with the safety, operating, and maintenance instructions in this manual and the safety, operations and maintenance instructions in the machine tool's manuals.

– WARNING –

HAZARDS..... It is the user's responsibility to make certain that all machine tool safety, operation, and maintenance instructions and accessory safety, operation, and maintenance instructions are taken into consideration before operating the power chuck. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

MAXIMUM PERMISSIBLE RPM..... (Spindle speed) shall be determined by the user on the basis of the gripping force required for the specific machining application. It shall not exceed the maximum recommended spindle speed (RPM) of the power chuck (pages 12-17). The maximum chuck RPM may only be used at the maximum applied draw bar force and with a properly operating chuck. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

DYNAMIC GRIPPING FORCE..... for special top jaws, as well as standard height, medium height and hard top jaws, shall be calculated by the user in conjunction with the related chuck according to the method given in this manual. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

STATIC GRIPPING FORCE..... measuring devices shall be used to check the gripping force of the power chuck at regular intervals according to the operation and maintenance information in this manual. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

TURN OFF POWER ..... before changing, inspecting, lubricating or setting the chuck. ***(If machine is accidently started, there may be damage to the machine and/or personal injury.)***

NEVER OPERATE ..... the Open or Close switches on the control while the spindle is rotating. ***(Jaws may open, allowing the workpiece to come out, causing damage to the machine and/or personal injury.)***

DO NOT EXCEED..... maximum recommended spindle RPM even when using the maximum recommended draw bar force. ***(Chuck may be damaged and/or the workpiece may come out, damaging the machine tool and/or injuring the operator.)***

NEVER START ..... the machine with the machine doors open. ***(The workpiece or the jaws may come out, causing damage to the machine and/or personal injury.)***

"T" NUTS..... should never extend beyond the OD of the chuck body. ***(The jaws will not be held securely to the chuck which may cause the jaws to come off, or the workpiece to come out of the jaws, causing damage to the machine and/or personal injury.)***

NEVER EXCEED..... the maximum draw bar/tube force of the chuck (Pages 12-17). ***(Chuck and mounting bolts may be damaged, causing the chuck, jaws or workpiece to come off, causing damage to the machine and/or personal injury.)***

ALWAYS CHECK THE STROKE..... of the machine tool's draw bar. It should be greater than or equal to the draw bar stroke of the chuck. If the machine's stroke is less than the chuck's, the jaw stroke will be reduced proportionately. ***(The jaw stroke may not be adequate to handle the tolerance variation of the workpiece chucking diameter, causing damage to the machine and/or personal injury.)***

HEAVY DUTY GUARD..... must be installed around the chuck when being used on an unshielded machine tool. ***(If a jaw breaks and/or a workpiece comes loose without a guard installed, there may be damage to the machine and/or personal injury.)***

POWER FAILURE..... can shut your machine down. Always check your chuck to make certain that you have full chucking force before continuing production. Even though your machine tool rotating draw tube has check valves to maintain chucking pressure in this type circumstance, always check your chuck. ***(Noncompliance may cause damage to the machine, the chuck, and/or personal injury.)***

PROPERLY TORQUE..... the bolts for mounting the chuck to the spindle and mounting the jaws to the chuck. Over-torque of the bolts may cause cracks and under-torque may allow the bolts to loosen (Pages 119-122). ***(Not complying with the torque specifications may cause damage to the machine and/or personal injury.)***

BACK OF TOP JAWS MUST NOT.... extend beyond the outside diameter of the chuck. This condition creates extremely high centrifugal forces which may allow the workpiece to come out of the jaw and/or fatigue and fracture the jaws. ***(These conditions may cause damage to the machine and/or personal injury.)***

– WARNING –

JAW HEIGHT ..... should be within the maximum gripping force limits. ***(When jaws are too high and the maximum gripping force limits are exceeded, the workpiece may come out of the chuck, causing damage to the machine and/or personal injury.)***

INTERNAL CHUCKING ..... requires a reduction of the gripping force because centrifugal force adds additional gripping force which could distort the part or cause the part to fracture after material has been removed. The necessary pressure reduction may be as low as 20% and when working with thin wall parts higher than 50%. The user must determine the gripping force required for each specific workpiece. ***(The workpiece may come off of the jaws, causing damage to the machine and/or personal injury.)***

LONG WORKPIECES ..... require the use of a tailstock center or a steady rest. Workpieces are considered long when the length is approximately three (3) times its diameter. For example a 1" diameter part 3 1/2" long would require a tailstock, a piece 2 3/4" long would not. This applies only if the part is gripped by the complete height of the jaw. If the part is gripped in a stepped jaw, the ratio decreases accordingly. For example a 1" diameter part 2 1/2" long gripped 1/4" deep in stepped jaws would require a tailstock. ***(The workpiece may come out of the jaws, causing damage to the machine and/or personal injury.)***

HEAVY CUTS ..... at high RPM's can cause part slippage and/or cause the workpiece to come loose. ***(The workpiece may come out of the jaws, causing damage to the machine and/or personal injury.)***

DO NOT MODIFY ..... the chuck body, top plate, T-nuts or other components. Any modification will cause the chuck to be out of balance. See additional note under THE CHUCK BALANCE on this page. ***(Any modification may cause the chuck to fail, causing damage to the machine and/or personal injury.)***

NEVER OPERATE ..... the machine tool and chuck while under the influence of alcohol, drugs, controlled substances or prescription medication. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

DO NOT WEAR ..... gloves, ties, jewelry, watches, loose clothing or long hair when operating a machine tool and/or chuck. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

WHEN LIFTING ..... the chuck, use the eyebolt and a hoist. For chucks that do not have an eyebolt, use a lifting strap of sufficient strength capabilities and a hoist. ***(Personal injury, damage to the machine and/or the chuck may result from improper lifting of the chuck.)***

KEEP HANDS OUT ..... of the gripping area of the chuck when gripping a workpiece. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

NEVER HAMMER ..... the chuck, jaws or workpiece. ***(Chuck may be damaged resulting in the workpiece and/or jaws coming off, causing damage to the machine and/or personal injury.)***

THE CHUCK BALANCE ..... is critical. The chuck is precision-balanced (ISO - G6.3) during the manufacturing process at Hardinge®. If a chuck has been damaged and repaired, it should not be used until it has been precision balanced by a qualified technician. ***(Unbalanced chucks may allow parts to come loose, causing damage to the machine and/or personal injury.)***

GREASE CHUCK ..... a minimum of once every 24 hours. More frequent lubrication may be required when using non-water based coolants or when workpiece production results in very short cycle times. ***(Insufficient lubrication may result in lower gripping forces at the workpiece, allowing the workpiece to come loose, causing damage to the machine and/or personal injury.)***

ONLY SPINDLE ADAPTERS ..... manufactured or recommended by Hardinge can be used with Sure-Grip® power chucks. ***(Improper materials and machine spindle specifications may cause improper mating of the spindle and/or the chuck as well as failure of the material. The chuck and/or spindle adapter may come loose or break apart, causing damage to the machine and/or personal injury.)***

ONLY TOP JAWS ..... manufactured or recommended by Hardinge should be used on Sure-Grip chucks. ***(Improper mat-erials and machining specifications may cause jaws to fail, causing damage to the machine and/or personal injury.)***

LENGTH OF TOP JAW BOLTS ..... is critical. If bolts are too long they will bottom out in the master jaw before the jaw is securely locked. ***(The unstable jaw may release the workpiece, causing damage to the machine and/or personal injury - see page 33.)***

COLLISIONS ..... After any collision, the jaws and the chuck must be removed and checked for any cracks, out-of-balance, or damage. The chuck must be disassembled and all parts checked for cracks and damage. The chuck must not be used unless certified by a person with proper credentials. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

DAMAGED BOLTS ..... Worn or damaged bolts used to hold the jaws to the chuck and/or used to mount the chuck to the spindle must be replaced with new bolts. The bolts must meet DIN912 12.9, ISO 4762, or ANS B 18.3.1M specifications. ***(Ignoring this warning may cause damage to the machine and/or personal injury.)***

GUIDELINES FOR USING POWER OPERATED CHUCKS

When mounting the Hardinge® Sure-Grip® Chuck on a lathe for heavy-duty machining at high spindle speeds, certain criteria must be taken into consideration to ensure safe operation of the chuck as well as the machine tool.

Machine tools other than Hardinge may require an actuating cylinder and draw bar to operate the chuck. The following safety requirements must be met for these configurations as well as those mounted on Hardinge lathes. Make sure the machine tool has the following features before mounting the Hardinge Sure-Grip Chuck, and that each of these features function properly.

- **Spindle Start:** The spindle cannot be allowed to rotate until the clamping pressure has built up in the actuating cylinder and the clamping has taken place.
- **Open Chuck:** The chuck may not be opened until the spindle has come to a complete stop.
- **Hydraulic or Pneumatic Power Failure:** The workpiece must stay firmly gripped in the chuck jaws until the spindle has come to a complete stop.
- **Electrical Power Failure:** After an electrical power failure, the workpiece must stay firmly gripped in the chuck jaws until the spindle has come to a complete stop. When the electricity is resumed, the chuck must still firmly grip the part so as not to release it. The user must make certain after any electrical power failure that all functions of the machine work properly before operating the chuck or the machine tool.
- **Draw Bar Pressure Failure:** If the pressure fails going to the actuating cylinder, a signal must stop the machine spindle.
- **Safety Instructions:** The safety instructions given in the machine tool operations manual and maintenance manual must be strictly followed. When using a second-source actuating cylinder, the safety instructions given in its operation's manual must also be strictly followed.

Chuck Functioning (See ISO TR 13618 Recommendations for the User)

After mounting the chuck, the following must be checked by the operator/setup person before operating the chuck on the machine tool:

- **Clamping Force:** The clamping force found in the chuck operation manual must be obtainable at the maximum recommended draw bar force.
- **Stroke Safety Range:** A safety stroke limit must be provided for both the forward and back positions. The machine spindle can only start after the draw bar has moved enough to safely close the chuck.
- **RPM Limit:** The machine tool must be equipped with a speed limitation device to make certain that the spindle RPM of the machine does not exceed the maximum RPM limitations of the chuck.
- **Adjustable Stroke Limits:** When a different size or manufacturer of chuck is mounted to the machine spindle, the draw bar stroke limit must be adjustable to meet these new specifications.
- **Centrifugal Force:** The centrifugal force of the clamping jaws must be taken into consideration when calculating the required clamping for machining a workpiece.

Chuck Maintenance

The chuck will only operate properly when the maintenance instructions are precisely followed as outlined in the operation's manual for the chuck. The following practices must be followed:

- **Only lubricants specified** in the operation's manual must be used. An unsuitable lubricant can unexpectedly reduce the clamping force dramatically. Use Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-Plus, or Kluber ALTEMP Q NB 50 grease.
- **A pressure gun must be used to make certain that the lubricant reaches all the surfaces requiring lubrication.**
- **The chuck must be actuated several times** through its complete stroke in order for the lubricant to reach all surfaces. After this has been done, repeat the lubrication and then check the clamping force of the chuck.

Clamping Force Check

- **Before starting a machining operation** or when changing jobs, and in between the maintenance intervals, the clamping force should be checked by means of a clamping force gage. Regular checks will ensure the optimum performance of the chuck.

Full Stroke Schedule

- **The chuck jaws should be moved** through their complete stroke range once every twenty-four hours. This practice will return any lubricant that has been pushed away from the pressure surfaces. The clamping force will be maintained for a longer period of time as well as reducing wear to these surfaces.

Special Jaws

When using jaws configured different than the standard jaws, the following instructions must be followed:

- **Jaw Height and Weight:** The special jaws must be designed in such a way that their weight and height is as low as possible. The clamping point should be as close to the face of the chuck as possible. A clamping point which is at a higher distance may cause greater surface pressure on the sliding surfaces, thus considerably reducing the clamping force as well as decreasing the life of the chuck. Many times special jaws are required by the part configuration but do not require the mass of the large top jaw. In these instances, remove as much mass as possible and still safely grip the workpiece.
- **Calculating the rated speed:** If the special jaws are wider and/or higher than the hardened and ground single step jaws, the resulting higher centrifugal forces must be taken into consideration when calculating the required clamping pressure and RPM. For calculating the rated speed for a certain machining operation, the following formula must be applied:

$$n_{max.} = \sqrt{\frac{F_{spo} - F_{spz}}{m \cdot rc \cdot a}} \cdot \frac{30}{\pi}$$

F_{spo} = initial clamping force at 0 RPM (measure in Newtons [N])
F_{spz} = required clamping force with chuck at 0 RPM for a certain machining task (measure in Newtons [N])
n_{max} = maximum admissible speed (RPM)
m = mass of the entire jaw unit (kg)chuck and top jaws
rc = center of gravity radius of the entire jaw unit (m)
a = number of jaws

- **Welded Jaws:** Welded jaws should not be used. If absolutely necessary, the weld seams must be checked as to their centrifugal and clamping force capacity.
- **Mounting Screws:** Mounting screws must be positioned for maximum holding.

Parts List: 8" Chuck Assembly for Hardinge® CNC Lathes—A2-5 Spindle

Assemblies for Hardinge A2-5, 16C Spindle CNC Lathes:

Model No.	Part Number	Description
HM-308-5	SCA 2000308 A25H	Standard Chuck - 1.5mm x 60° Master Jaw Serrations
HM-308-5Q	SC 2070308 A25H	Quick-Change Chuck - 1.5mm x 60° Master Jaw Serrations

Parts List:

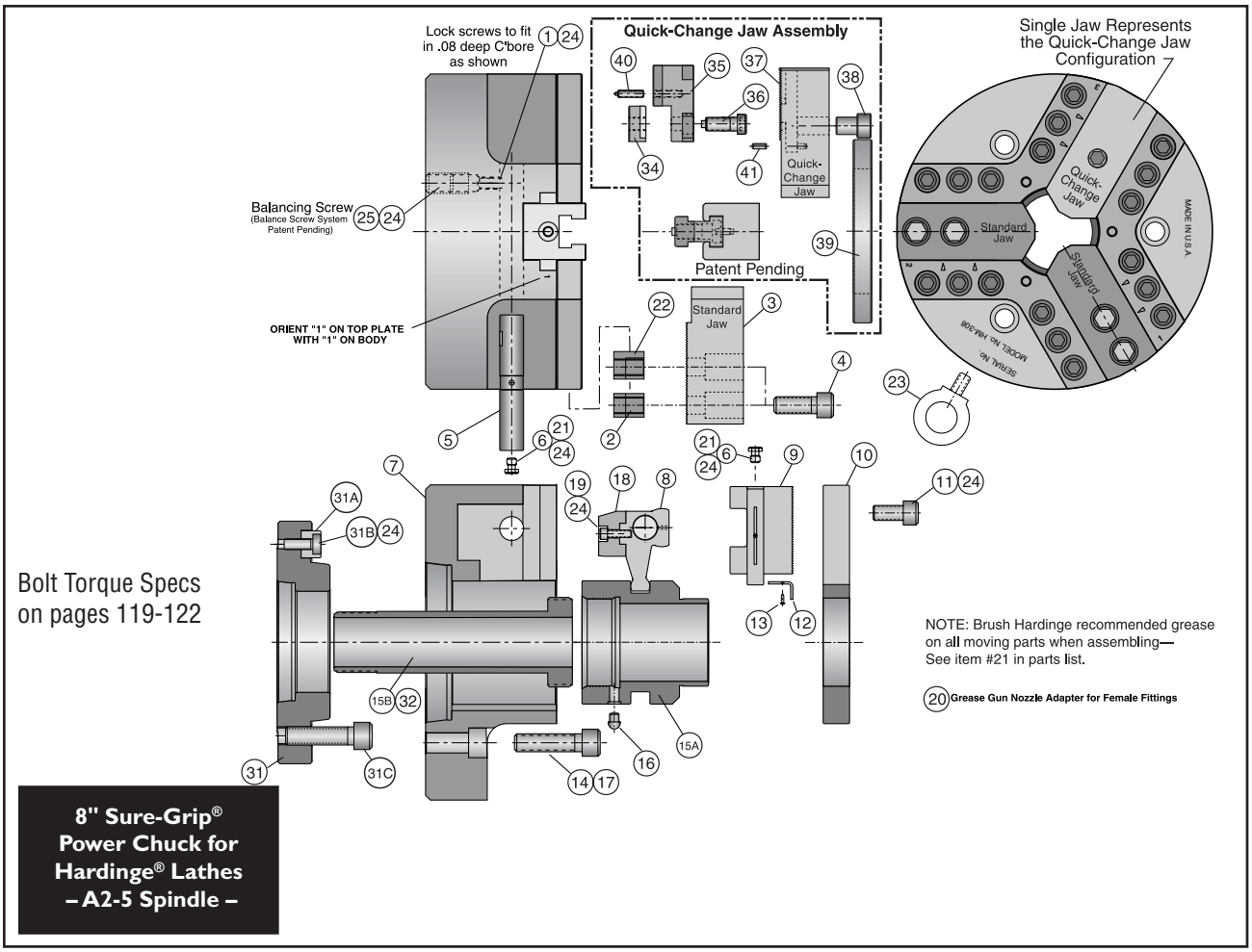
Item	Qty	Part Number	Description
1	6	MS 0553814	Socket Set Screw-Flat [M6 x 1x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000115	"T" Nut Flat - for Metric Serrations - # 22 also needed - Must Use Hardinge "T" Nuts
3	3	SC 2000116	Soft Top Jaw
4	6	MS 0104219	Socket Head Cap Screw [M12x1.75 x 25mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000110	Pin
6	6	CE 0001851	Fitting, Alemite No. 1851
7	1	replacement N/A	Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
8	3	SC 0000108	Lever
9	3	SCA 0000114	Master Jaws with Metric Serrations (1.5mm x 60°)
Kit	1	SCA 2000114 S	Three Master Jaws (9), Shields (12), Escutcheon Pins (13)
10	1	SC 0000106	Top Plate
11	18	MS 0104018	Socket Head Cap Screw [M10x1.5 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
12	3	SC 0000105	Chip Shield
13	6	R 0008044	Escutcheon Pin
14	3	MS 0104223	Socket Head Cap Screw [M12x1.75x45mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15A	1	SC 0000104	Chuck Draw Bar for Hardinge A2-5 16C Spindle
15B	1	SC 0000132	Chuck Draw Bar Adapter
16	1	SCA 0000003	Key
17	3	0101428	Socket Head Cap Screw [1/2"-13x 1-3/4"] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
18	3	SCA 0000102	Counter Weight
19	3	MS 0103518	Socket Head Cap Screw [M5 x.8 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
20	1	CE 0000737	Nozzle, Alemite No. Z-737
21	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
22	3	SC 0000131	"T"-Nut - Round - for Metric Serrations - # 2 also needed - Must Use Hardinge "T"-Nuts
23	1	CE 0000012	Eye Bolt, Reid MEB-12
24	0	NC 0010884	Loctite #242
25	1	B 0009500 0087	Safety and Technical Manual
30	3	MS 0554219 SS	M12x1.75x25mm Set Screw - Balancing Screw - Length may vary
31	1	SC 0000133	Spindle Adapter – A2-5 to A2-6
31A	1	CS 0011920	Drive Button
31B	1	A2 0011920	Screw for Drive Button
31C	6	MS 0104019	Socket Head Cap Screw (M10 x 1.5 x 25mm) (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
32	1	SC 0000132	Adapter
Kit	**1**	**SC 2000721QC**	**Quick-Change Kit** includes all parts listed below:
34	3	SC 0000722	T-Nut
35	3	SC 0000720	I-Beam
36	3	SC 0000723	Screw
37	3	SC 2000721	Top Jaw
38	3	SC 0000725	Boring Pin
39	1	SC 0000726	Boring Ring
40	3	CE 0000004AN	Spring Plunger
41	3	TL 0006615	Dowel Pin

Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks—1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for Standard Chucks)
8MSHF	SC 2000119	Standard Height Soft Flat Top Jaw
8MMHF	SC 2000120	Medium Height Soft Flat Top Jaw
8MSHP	SC 2000116	Standard Height Soft Pointed Top Jaw
8MMHP	SC 2000123	Medium Height Soft Pointed Top Jaw
8MH1	SC 2000121	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks)**
8MQP1	SC 2000721	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle.)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (36) one full turn; Remove Quick-Change Top Jaw (37); Again loosen bolt (36) 1/2 turn; Slide I-beam assembly off (34) (35) (40) master jaw.
- Remove eighteen socket-head cap screws (11) from the top plate.
- Remove the top plate (10). The chip shield (12) does not have to be removed.
- Remove the three master jaws (9).
- Remove three set screws (25) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove 6 set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Lever/counterweight assembly (8) (18) (19).
- Remove Chuck Draw Bar (15A). Do not disassemble item (16) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (11) (14) (17) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (24) on bolts (1)(11)(25).
- Use pressure gun with adapter (20) to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun with adapter (20) to lightly grease master jaws (9) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 8" Chuck Assembly for Hardinge® Lathes—A2-6 Spindle

Assemblies for Hardinge CNC Lathes: 1.5mm x 60° Master Jaw Serrations

Model No.	Part Number	Description
HM-308	SCA 2000308 A26H	Standard Chuck A2-6, 20C Spindle (T42BB, T51, COBRA® 51, QUEST® & Elite® 8/51, RS 51)
HM-308-Q	SC 2070308 A26H	Quick-Change Chuck A2-6, 20C Spindle (T42BB, T51, COBRA® 51, QUEST® & Elite® 8/51, RS 51)
HMQ-308	SC 2000308 A26Q	Standard Chuck A2-6, 25C Spindle (QUEST® 10/65, RS 65)
HMQ-308-Q	SC 2070308 A26Q	Quick-Change Chuck A2-6, 25C Spindle (QUEST® 10/65, RS 65)

Item	Qty	Part Number	Description
1	6	MS 0553814	Socket Set Screw-Flat [M6 x 1x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000115	"T" Nut Flat - for Metric Serrations - Item 22 also needed - Must Use Hardinge "T" Nuts
3	3	SC 2000116	Soft Top Jaw
4	6	MS 0104219	Socket Head Cap Screw [M12x1.75 x 25mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000110	Pin
6	6	CE 0001851	Fitting, Alemite No. 1851
7	1	replacement N/A	Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
8	3	SC 0000108	Lever
9	3	SCA 0000114	Master Jaws with Metric Serrations (1.5mm x 60°)
Kit	1	SCA 2000114 S	Three Master Jaws (9), Shields (12), Escutcheon Pins (13)
10	1	SC 0000106	Top Plate
11	18	MS 0104018	Socket Head Cap Screw [M10x1.5 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
12	3	SC 0000105	Chip Shield
13	6	R 0008044	Escutcheon Pin
14	3	MS 0104223	Socket Head Cap Screw [M12x1.75x45mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	1	SC 0000113	Chuck Draw Bar (CONQUEST® T42BB & T51, COBRA® 51, QUEST® & Elite® 8/51, RS 51)
15a	1	SC 0000576	Chuck Draw Bar (QUEST® 10/65, RS 65)
16	1	SCA 0000003	Key
17	3	0101428	Socket Head Cap Screw [1/2"-13x 1-3/4"] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
18	3	SCA 0000102	Counter Weight
19	3	MS 0103518	Socket Head Cap Screw [M5 x.8 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
20	1	CE 0000737	Nozzle, Alemite No. Z-737
21	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
22	1	CE 0000012	Eye Bolt, Reid MEB-12
23	0	NC 0010884	Loctite #242
24	1	B 0009500 0087	Safety and Technical Manual
29	3	SC 0000131	"T"-Nut - Round - for Metric Serrations - Item 2 also needed - Must Use Hardinge "T"-Nuts
30	3	MS 0554219 SS	M12x1.75x25mm Set Screw - Balancing Screw - Length may vary
Kit	**1**	**SC 2000721QC**	**Quick-Change Kit** includes all parts listed below
32	3	SC 0000722	T-Nut
33	3	SC 0000720	I-Beam
34	3	SC 0000723	Screw
35	3	SC 2000721	Top Jaw
36	3	SC 0000725	Boring Pin
37	1	SC 0000726	Boring Ring
38	3	CE 0000004AN	Spring Plunger
39	3	TL 0006615	Dowel Pin

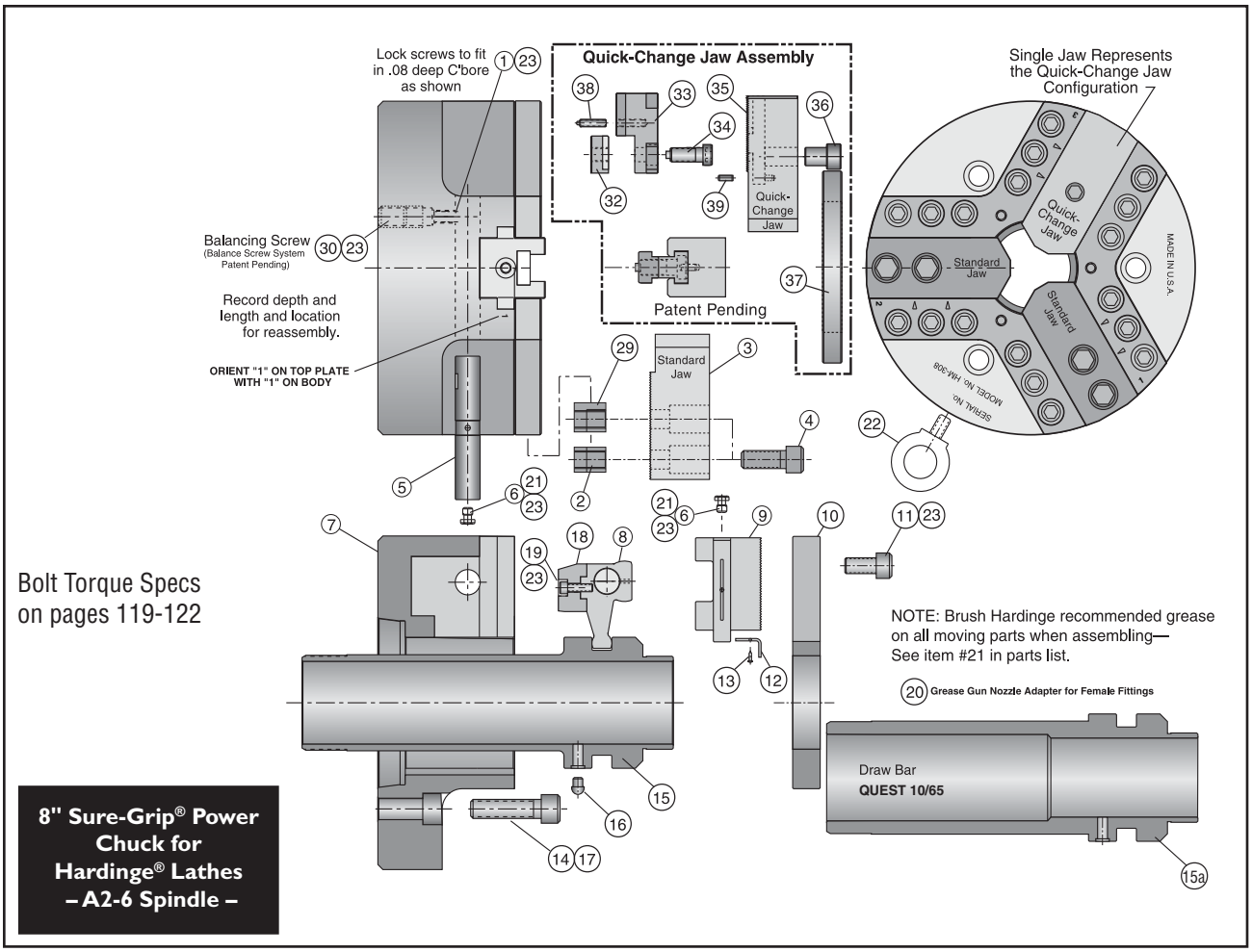
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks —1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for standard Chucks)
8MSHF	SC 2000119	Standard Height Soft Flat Top Jaw
8MMHF	SC 2000120	Medium Height Soft Flat Top Jaw
8MSHP	SC 2000116	Standard Height Soft Pointed Top Jaw
8MMHP	SC 2000123	Medium Height Soft Pointed Top Jaw
8MH1	SC 2000121	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks)**
8MQP1	SC 2000721	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (34) one full turn; Remove Quick-Change Top Jaw (35); Again loosen bolt (34) 1/2 turn. Slide I-beam assembly off (32) (33) (38) master jaw.
- Remove eighteen socket-head cap screws (11) from the top plate.
- Remove the top plate (10). The chip shield (12) does not have to be removed.
- Remove the three master jaws (9).
- Remove three set screws (30) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Lever/counterweight assembly (8) (18) (19).
- Remove Chuck Draw Bar (15). Do not disassemble item (16) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (11) (14) (17) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (23) on bolts (1)(11)(30).
- Use pressure gun with adapter (20) to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun with adapter (20) to lightly grease master jaws (9) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 8" Chuck Assembly for Hardinge®-EMAG VL5 Lathes–A2-6 Spindle

Assemblies for Hardinge-EMAG VL5 Lathes:

Model No.	Part Number	Description
HM-308-6E	SC 2200308 A26E	Standard Chuck – 1.5mm x 60° Master Jaw Serrations
HM-308-6EQ	SC 2270308 A26E	Quick-Change Chuck – 1.5mm x 60° Master Jaw Serrations

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0553814	Socket Set Screw-Flat [M8 x 1.25x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000115	"T" Nut - for Metric Serrations - .787" spacing for Hard & Soft Jaws - Must Use Hardinge "T" Nuts
3	3	SC 2000116	Soft Top Jaw
4	6	MS 0104219	Socket Head Cap Screw [M12x1.75x25mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000110	Pin
6	9	CE 0001851	Fitting, Alemite No. 1851
7	1	replacement N/A	Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
8	3	SC 0000108	Lever
9	3	SCA 0000114	Master Jaw with Metric Serrations
Kit	1	SCB 2000014 S	Three Master Jaws (9), Shields (12), Escutcheon Pins (13)
10	1	SC 0000356	Top Plate
11	18	MS 0104018	Socket Head Cap Screw [M10-1.5x20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
12	3	SC 0000105	Chip Shield
13	6	R 0008044	Escutcheon Pin
14	3	MS 0104223	Socket Head Cap Screw [M12-1.75x45mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
16	1	SCA 0000003	Key
17	3	MS 0103516	Socket Head Cap Screw [M5-.8x12mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
18	3	SCA 0000102	Counter Weight
19	3	MS 0103518	Socket Head Cap Screw [M5x.8x20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
20	1	CE 0000737	Nozzle, Alemite No. Z-737
21	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
22	1	CE 0000012	Eye Bolt
23	0	NC 0010884	Loctite #242
29	3	SC 0000131	Round T-Nut
30	3	MS 0554219 SS	Balancing Set Screw [M12x1.75x25mm] Length of screws may vary
31	1	SC 0000391	Tool for VL5 EMAG
32	1	SC 0000388	Chuck Draw Bar (Draw Head)
33	1	CE 1032468	Stubby Plunger [10-32x$^{15}/_{32}$]
34	1	SC 0000600	Draw Bar Link
35	1	SC 0000390	Nut
36	1	B 0009500 0087	Safety and Technical Manual
37	1	SC 0000597	A2-6 to A2-6 Spindle Adapter Assembly
38	1	SC 0000587	Cover Plate
39	1	MS 0573614	Socket Head Set Screw [m6x1x8mm]
40	1	SC 0000598	Draw Bar Link Adapter
41	1	455 0009189	Erickson-Style Spanner Wrench for Installing Link
42	1	SC 0000592	Mounting Fixture
Kit	**1**	**SC 2000721QC**	**Quick-Change Kit** includes all parts listed below:
43	3	SC 0000722	T-Nut
44	3	SC 0000720	I-Beam
45	3	SC 0000723	Screw
46	3	SC 2000721	Top Jaw
47	3	SC 0000725	Boring Pin
48	1	SC 0000726	Boring Ring
49	3	CE 0000004AN	Spring Plunger

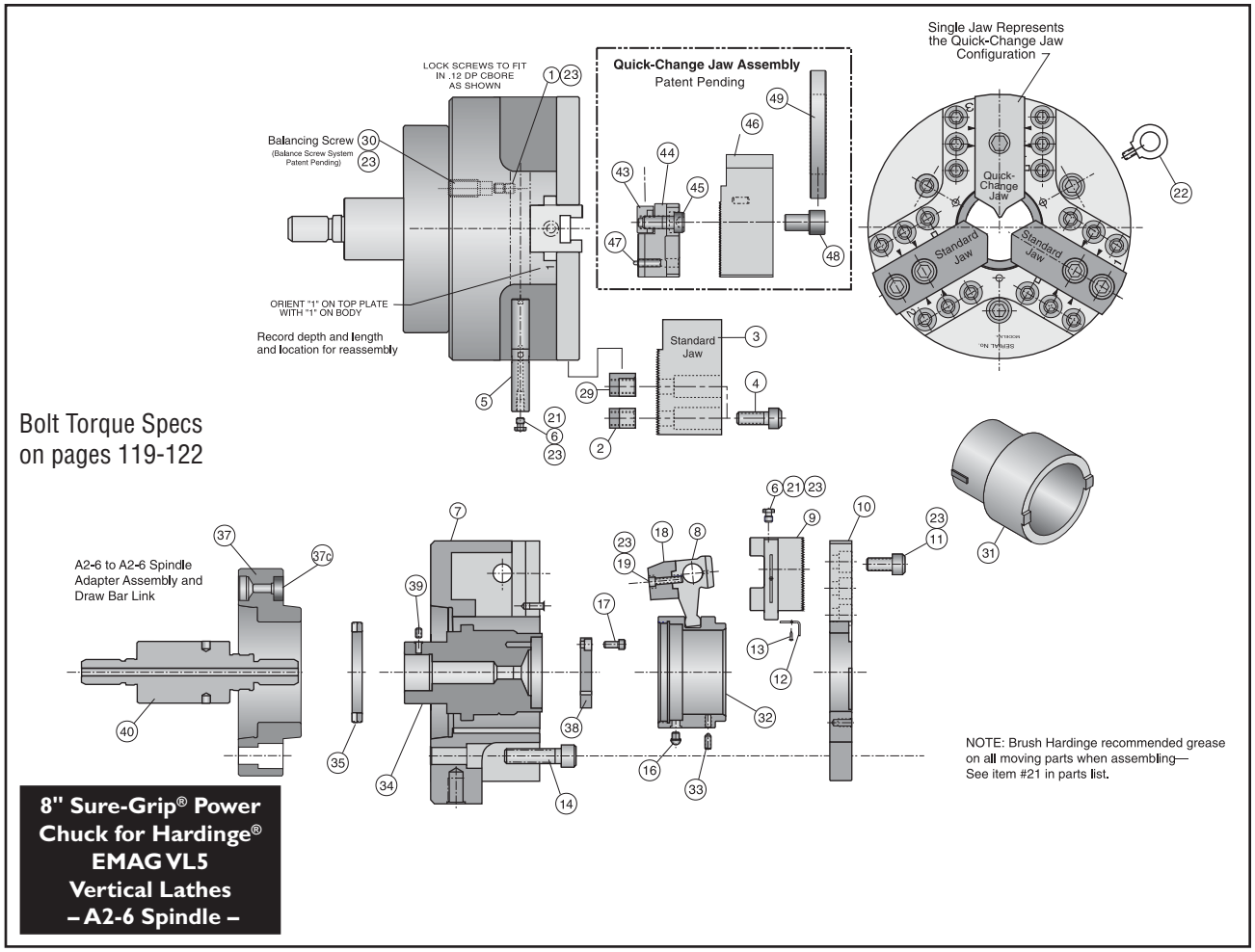
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks—1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for standard Chucks)
8MSHF	SC 2000119	Standard Height Soft Flat Top Jaw
8MMHF	SC 2000120	Medium Height Soft Flat Top Jaw
8MSHP	SC 2000116	Standard Height Soft Pointed Top Jaw
8MMHP	SC 2000123	Medium Height Soft Pointed Top Jaw
8MH1	SC 2000121	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks)**
8MQP1	SC 2000721	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (43) one full turn; Remove Quick-Change Top Jaw (44); Again loosen bolt (43) 1/2 turn. Slide I-beam assembly off (41) (42) (43) (45) master jaw.
- Remove eighteen socket-head cap screws (11) from the top plate.
- Remove the top plate (10). The chip shield (12) does not have to be removed.
- Remove the three master jaws (9).
- Remove three set screws (30) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Lever/counterweight assembly (8) (18) (19).
- Remove Chuck Draw Bar assembly (32) (34) (35) (37) (38). Disassembly not required.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (11) (14) (17) (37C) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(11)(28).
- Use pressure gun with adapter (20) to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun with adapter (20) to lightly grease master jaws (9) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 8" Chuck Assembly for Hardinge and Other Brand CNC Lathes—A2-6 Spindle

Assemblies for Hardinge Talent® 8/52, SV 200, GS 200 and Other Brand CNC Lathes: B-Version

Model No.	Part Number	Description
CM2-308B-6	SCA 2200308 A26C	Standard Chuck – A2-6 Spindle – 1.5mm x 60° Master Jaw Serrations (Other brands)
CM2-308B-6Q	SC 2270308 A26C	Quick-Change Chuck – A2-6 Spindle – 1.5mm x 60° Master Jaw Serrations (Other brands)
HM-308-6T	SC 2200308 A26T	Standard Chuck for Hardinge Talent 8/52, SV 200 and GS 200 CNC Lathes
HM-308-6TQ	SC 2270308 A26T	Quick-Change Chuck for Hardinge Talent 8/52, SV 200 and GS 200 CNC Lathes

Item	Qty	Part Number	Description
1	6	MS 0553814	Socket Set Screw-Flat [M6 x 1x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000115	"T" Nut Flat - Metric Serrations -Item 29 also needed Must Use Hardinge "T" Nuts
3	3	SC 2000116	Soft Top Jaw
4	6	MS 0104219	Socket Head Cap Screw [M12x1.75 x 25mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000110	Pin
6	6	CE 0001851	Fitting, Alemite No. 1851
7	1	replacement N/A	Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
8	3	SC 0000108	Lever
9	3	SCA 0000114	Master Jaw with Metric Serrations (1.5mm x 60°)
Kit	1	SCA 2000114 S	Three Master Jaws (9), Shields (12), Escutcheon Pins (13)
10	1	SC 0000356	Top Plate
11	18	MS 0104018	Socket Head Cap Screw [M10x1.5 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
12	3	SC 0000105	Chip Shield
13	6	R 0008044	Escutcheon Pin
14	3	MS 0104223	Socket Head Cap Screw [M12x1.75x45mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
16	1	SCA 0000003	Key
17	3	0101428	Socket Head Cap Screw [1/2"-13x 1-3/4"] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
18	3	SCA 0000102	Counter Weight
19	3	MS 0103518	Socket Head Cap Screw [M5 x.8 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
20	1	CE 0000737	Nozzle, Alemite No. Z-737
21	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
22	1	CE 0000012	Eye Bolt, Reid MEB-12
23	0	NC 0010884	Loctite #242
29	3	SC 0000131	"T"-Nut - Round - for Metric Serrations - Item 2 also needed - Must Use Hardinge "T"-Nuts
30	3	MS 0554219 SS	M12x1.75x25mm Set Screw - Balancing Screw - Length may vary
31	1	SC 0000391	Special Wrench - Used to mount the link
32	1	SC 0000388	Chuck Draw Bar (Draw Head)
33	1	CE 1032468	Stubby Plunger (#10-32 x $^{15}/_{32}$")
34	1	SC 0000389	Draw Bar Link for other brand CNC lathes
34a	1	SC 0000607	Draw Bar Link for Hardinge (Talent® 8/52, SV 200, GS 200)
35	1	SC 0000140	Nut
36	1	B 0009500 0087	Safety and Technical Manual
Kit	**1**	**SC 2000721QC**	**Quick-Change Kit** includes all parts listed below:
37	3	SC 0000722	T-Nut
38	3	SC 0000720	I-Beam
39	3	SC 0000723	Screw
40	3	SC 2000721	Top Jaw
41	3	SC 0000725	Boring Pin
42	1	SC 0000726	Boring Ring
43	3	CE 0000004AN	Spring Plunger
44	3	TL 0006615	Dowel Pin

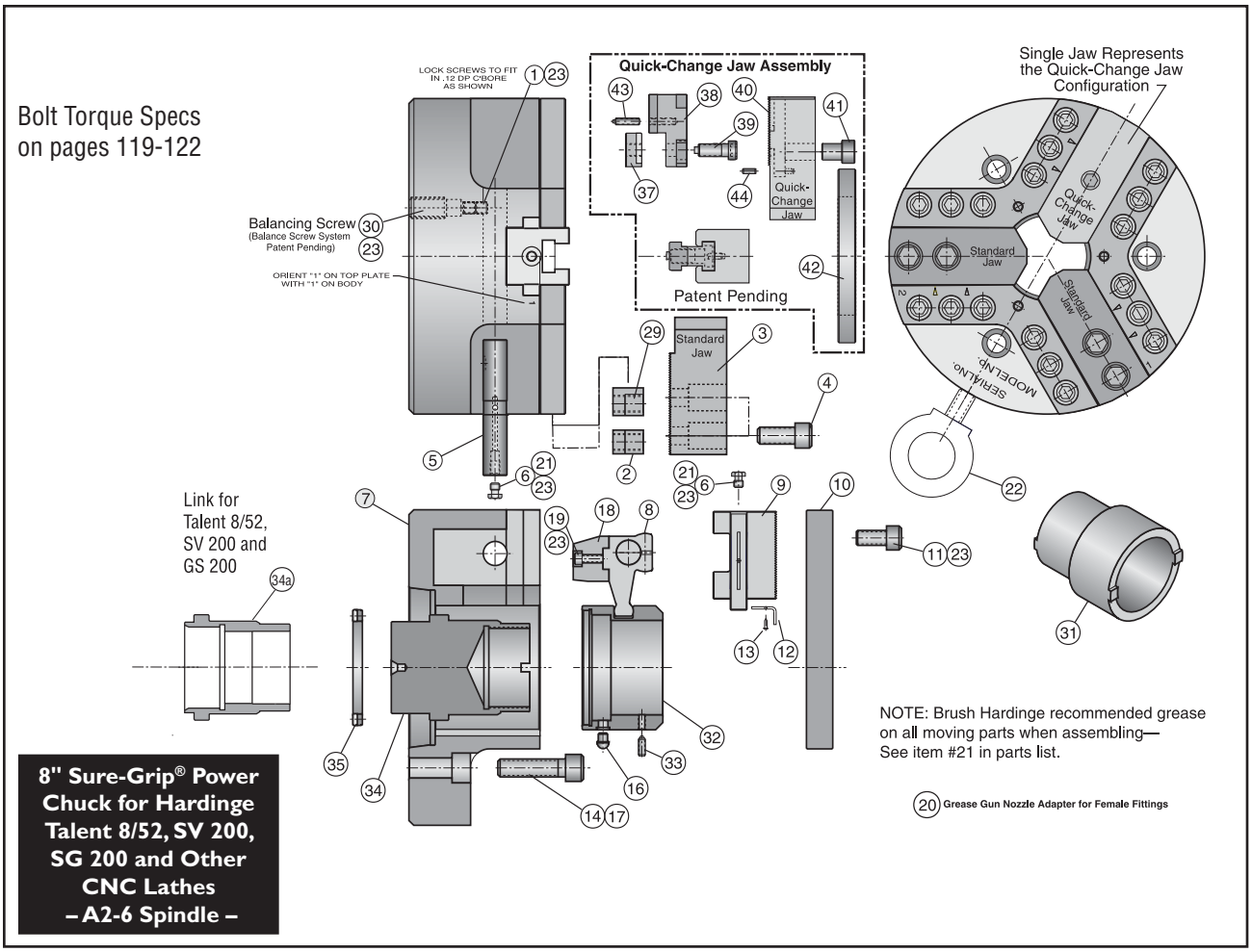
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks —1.5mm x 60° Metric Serrations

Model No.	Part Number	Description
8MSHF	SC 2000119	Standard Height Soft Flat Top Jaw
8MMHF	SC 2000120	Medium Height Soft Flat Top Jaw
8MSHP	SC 2000116	Standard Height Soft Pointed Top Jaw
8MMHP	SC 2000123	Medium Height Soft Pointed Top Jaw
8MH1	SC 2000121	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description**
8MQP1	SC 2000721	Standard Height Soft Pointed Top Jaw

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)



Periodic Safety Inspection – Every 6 Months or After an Accident or Collision.

(This inspection should be done after the chuck has been removed from the lathe spindle.)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assemble into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (39) one full turn; Remove Quick-Change Top Jaw (40); Again loosen bolt (39) 1/2 turn. Slide I-beam assembly off (37) (38) (43) master jaw.
- Remove eighteen socket-head cap screws (11) from the top plate.
- Remove the top plate (10). The chip shield (12) does not have to be removed.
- Remove the three master jaws (9).
- Remove three set screws (30) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Lever/counterweight assembly (8) (18) (19).
- Remove Chuck Draw Bar (32). Do not disassemble item (16) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (11) (14) (17) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (23) on bolts (1)(11)(30).
- Use pressure gun with adapter (20) to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun with adapter (20) to lightly grease master jaws (9) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 8" Big Bore Chuck Assembly—Other CNC Lathes—A2-6 Spindle

Assemblies for Other Brand CNC Lathes: C-Version

Model No.	Part Number	Description
CM2-308C-6	SC 2300308 A26C	Standard chuck – A2-6 Spindle – 1.5mm x 60° Master Jaw Serrations
CM2-308C-6Q	SC 2370308 A26C	Quick Change Chuck – A2-6 Spindle - 1.5mm x 60° Master Jaw Serrations

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0553814	Socket Set Screw-Flat [M8 x 1.25 x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000131	"T" Nut Flat - Metric Serrations
3	3	SC 2000603	Soft Top Jaw
4	6	MS 0104219	Socket Head Cap Screw [M12x1.75 x 25mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000110	Pin
6	6	CE 0001851	Fitting, Alemite No. 1851
7	1	replacement N/A	Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
8	3	SC 0000108	Lever
9	3	SCA 0000114	Master Jaw with Metric Serrations (1.5mm x 60°)
10	1	SC 0000521	Top Plate
11	18	MS 0104018	Socket Head Cap Screw [M10x1.5 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
12	3	SC 0000105	Chip Shield
13	6	R 0008044	Escutcheon Pin
14	1	SC 0000523	Draw Head
15	1	CE 1032468	Stubby Plunger (#10-32 x 15/32")
16	1	SCA 0000003	Key
17	3	MS 0104232	[M12x1.75 x 100mm] SHCS
18	3	SCA 0000102	Counter Weight
19	3	MS 0103518	Socket Head Cap Screw [M5 x.8 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
20	3	SC 0000115	Flat " T" Nut
21	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
22	1	CE 0000012	Eye Bolt, Reid MEB-12
23	0	NC 0010884	Loctite #242
24	3	MS 0554219 SS	M12x1.75x25mm Set Screw - Balancing Screw - Length may vary
25	1	SC 0000524	Nut
26	1	SC 0000522	Draw Bar Link
27	1	CE 0000737	Nozzle, Alemite No. Z-737
33	1	SC 0000525	Special Wrench - Used to mount the link
34	1	B 0009500 0087	Safety and Technical Manual
Kit	**1**	**SC 2000727QC**	**Quick-Change Kit** includes all parts listed below
37	3	SC 0000722	T-Nut
38	3	SC 0000720	I-Beam
39	3	SC 0000723	Screw
40	3	SC 2000727	Top Jaw
41	3	SC 0000725	Boring Pin
42	1	SC 0000728	Boring Ring
43	3	CE 0000004AN	Spring Plunger
45	3	TL 0006615	Dowel Pin

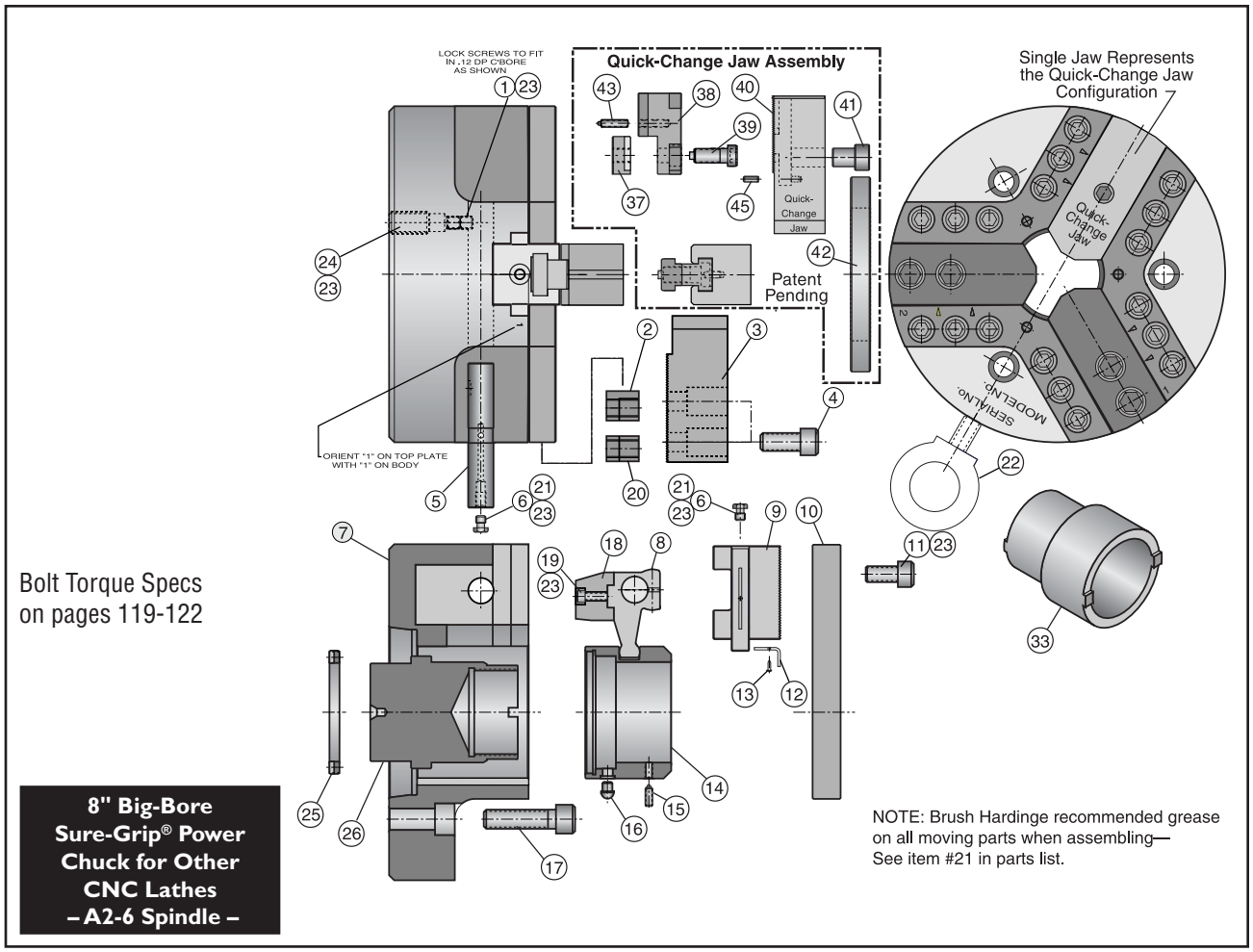
Quick-Change Parts

Top Jaws for Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for standard Chucks)
8MSHF	SC 2000119	Standard Height Soft Flat Top Jaw
8MMHF	SC 2000120	Medium Height Soft Flat Top Jaw
8MSHPL	SC 2000603	Standard Height Soft Pointed Top Jaw
8MMHP	SC 2000123	Medium Height Soft Pointed Top Jaw
8MH1	SC 2000121	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks)**
8MQP2	SC 2000727	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision.

(This inspection should be done after the chuck has been removed from the lathe spindle.)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the jaws with the T-nuts (2) (20) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (39) one full turn; Remove Quick-Change Top Jaw (40); Again loosen bolt (39) 1/2 turn. Slide I-beam assembly off (37) (38) (43) master jaw.
- Remove the eighteen socket-head cap screws (11) from the top plate.
- Remove the top plate (10).
- Remove the three master jaws (9). It is not necessary to disassembly Items (6) (12) (13).
- Remove three set screws (24), record depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Lever/counterweight assembly (8) (18) (19). Do not disassemble.
- Remove Chuck Draw Bar (14). Do not disassemble item (15) (16).
  Check all parts including mounting bolts (4) (11) (17) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (23) on bolts (1)(11)(24).
- Use pressure gun with adapter (27), grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun with adapter (27), lightly grease master jaws (9) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 8" Chuck Assembly—for Hardinge Lathes—A2-6 Spindle

Assemblies for Hardinge Talent® 8/66, GS 200/66

Model No.	Part Number	Description
HM-308C-6T	SC 2300308 A26T	Standard chuck – A2-6 Spindle – 1.5mm x 60° Master Jaw Serrations
HMQ-308C-6T	SC 2370308 A26T	Quick Change Chuck – A2-6 Spindle - 1.5mm x 60° Master Jaw Serrations

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0553814	Socket Set Screw-Flat [M8 x 1.25 x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000131	"T" Nut Flat - Metric Serrations
3	3	SC 2000603	Soft Top Jaw
4	6	MS 0104219	Socket Head Cap Screw [M12x1.75 x 25mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000110	Pin
6	6	CE 0001851	Fitting, Alemite No. 1851
7	1	replacement N/A	Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
8	3	SC 0000108	Lever
9	3	SCA 0000114	Master Jaw with Metric Serrations (1.5mm x 60°)
10	1	SC 0000521	Top Plate
11	18	MS 0104018	Socket Head Cap Screw [M10x1.5 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
12	3	SC 0000105	Chip Shield
13	6	R 0008044	Escutcheon Pin
14	1	SC 0000523	Draw Head
15	1	CE 1032468	Stubby Plunger (#10-32 x 15/32")
16	1	SCA 0000003	Key
17	3	MS 0104232	[M12x1.75 x 100mm] SHCS
18	3	SCA 0000102	Counter Weight
19	3	MS 0103518	Socket Head Cap Screw [M5 x.8 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
20	3	SC 0000115	Flat "T" Nut
21	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
22	1	CE 0000012	Eye Bolt, Reid MEB-12
23	0	NC 0010884	Loctite #242
24	3	MS 0554216 SS	M12x1.75x12mm Set Screw - Balancing Screw - Length may vary
25	1	SC 0000524	Nut
26	1	SC 0000522-T866	Draw Bar Link
27	1	CE 0000737	Nozzle, Alemite No. Z-737
33	1	SC 0000525	Special Wrench - Used to mount the link
34	1	B 0009500 0087	Safety and Technical Manual
Kit	**1**	**SC 2000727QC**	**Quick-Change Kit** includes all parts listed below
37	3	SC 0000722	T-Nut
38	3	SC 0000720	I-Beam
39	3	SC 0000723	Screw
40	3	SC 2000727	Top Jaw
41	3	SC 0000725	Boring Pin
42	1	SC 0000728	Boring Ring
43	3	CE 0000004AN	Spring Plunger
45	3	TL 0006615	Dowel Pin

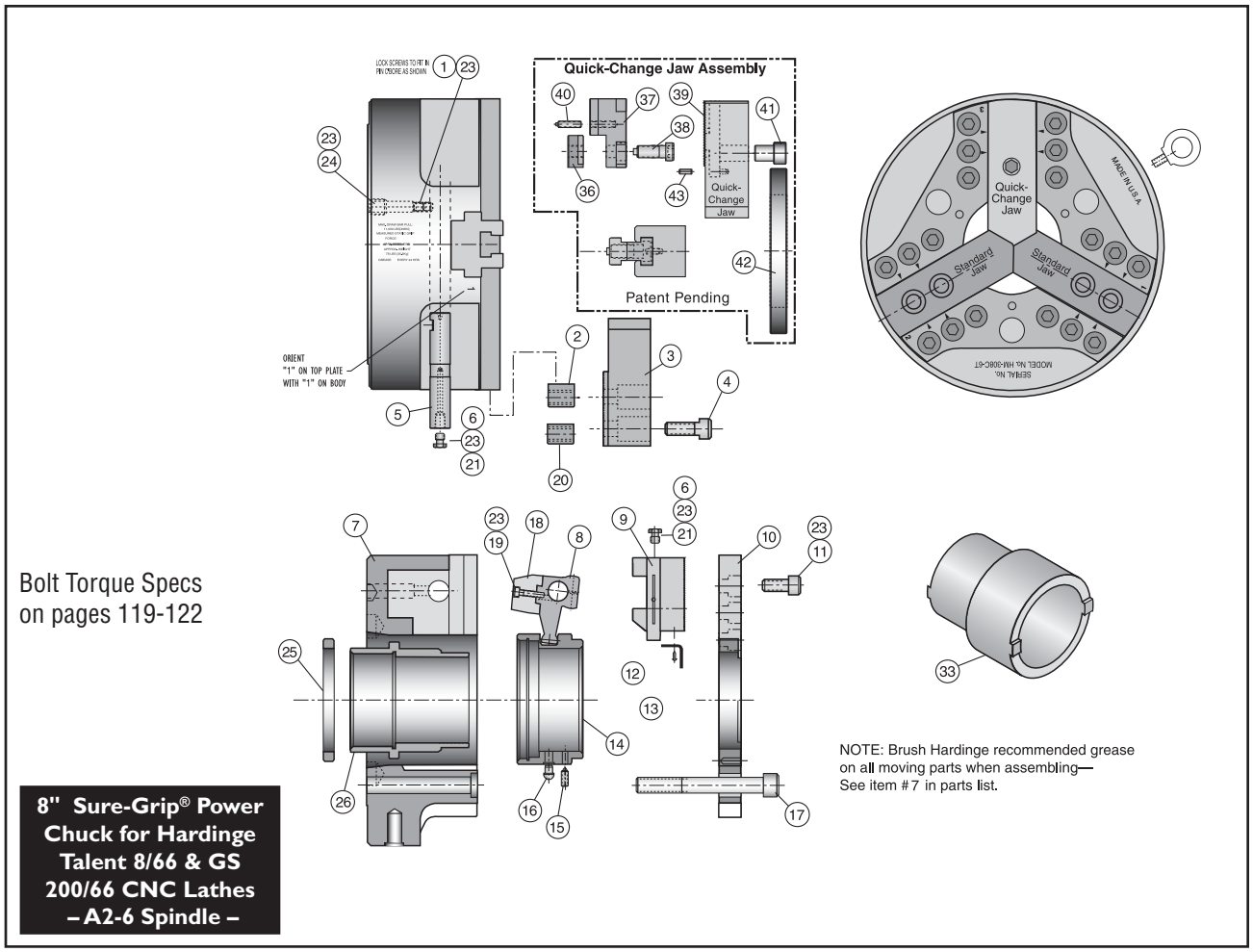
Quick-Change Parts

Top Jaws for Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for standard Chucks)
8MSHF	SC 2000119	Standard Height Soft Flat Top Jaw
8MMHF	SC 2000120	Medium Height Soft Flat Top Jaw
8MSHPL	SC 2000603	Standard Height Soft Pointed Top Jaw
8MMHP	SC 2000123	Medium Height Soft Pointed Top Jaw
8MH1	SC 2000121	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks)**
8MQP2	SC 2000727	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision.

(This inspection should be done after the chuck has been removed from the lathe spindle.)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the jaws with the T-nuts (2) (20) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (39) one full turn; Remove Quick-Change Top Jaw (40); Again loosen bolt (39) 1/2 turn. Slide I-beam assembly off (37) (38) (43) master jaw.
- Remove the eighteen socket-head cap screws (11) from the top plate.
- Remove the top plate (10).
- Remove the three master jaws (9). It is not necessary to disassembly Items (6) (12) (13).
- Remove three set screws (24), record depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Lever/counterweight assembly (8) (18) (19). Do not disassemble.
- Remove Chuck Draw Bar (14). Do not disassemble item (15) (16).
  Check all parts including mounting bolts (4) (11) (17) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (23) on bolts (1)(11)(24).
- Use pressure gun with adapter (27), grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun with adapter (27), lightly grease master jaws (9) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 8" Chuck Assembly—for Hardinge Lathes—A2-6 Spindle

Assemblies for Hardinge SR 200 CNC Lathes:

Model No.	Part Number	Description
HM-308C-SR	SC 2300308 A6SR	Standard chuck – A2-6 Spindle – 1.5mm x 60° Master Jaw Serrations
HM-308C-SRQ	SC 2370308 A6SR	Quick Change Chuck – A2-6 Spindle - 1.5mm x 60° Master Jaw Serrations

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0553814	Socket Set Screw-Flat [M8 x 1.25 x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000131	"T" Nut Flat - Metric Serrations
3	3	SC 2000603	Soft Top Jaw
4	6	MS 0104219	Socket Head Cap Screw [M12x1.75 x 25mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000110	Pin
6	6	CE 0001851	Fitting, Alemite No. 1851
7	1	replacement N/A	Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
8	3	SC 0000108	Lever
9	3	SCA 0000114	Master Jaw with Metric Serrations (1.5mm x 60°)
10	1	SC 0000521	Top Plate
11	18	MS 0104018	Socket Head Cap Screw [M10x1.5 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
12	3	SC 0000105	Chip Shield
13	6	R 0008044	Escutcheon Pin
14	1	SC 0000523	Draw Head
15	1	CE 1032468	Stubby Plunger (#10-32 x $^{15}/_{32}$")
16	1	SCA 0000003	Key
17	3	MS 0104232	[M12x1.75 x 100mm] SHCS
18	3	SCA 0000102	Counter Weight
19	3	MS 0103518	Socket Head Cap Screw [M5 x.8 x 20mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
20	3	SC 0000115	Flat "T" Nut
21	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
22	1	CE 0000012	Eye Bolt, Reid MEB-12
23	0	NC 0010884	Loctite #242
24	3	MS 0554216 SS	M12x1.75x12mm Set Screw - Balancing Screw - Length may vary
25	1	SC 0000524	Nut
26	1	SC 0000522-SR	Draw Bar Link
27	1	CE 0000737	Nozzle, Alemite No. Z-737
33	1	SC 0000525	Special Wrench - Used to mount the link
34	1	B 0009500 0087	Safety and Technical Manual
Kit	**1**	**SC 2000727QC**	**Quick-Change Kit** includes all parts listed below
37	3	SC 0000722	T-Nut
38	3	SC 0000720	I-Beam
39	3	SC 0000723	Screw
40	3	SC 2000727	Top Jaw
41	3	SC 0000725	Boring Pin
42	1	SC 0000728	Boring Ring
43	3	CE 0000004AN	Spring Plunger
45	3	TL 0006615	Dowel Pin

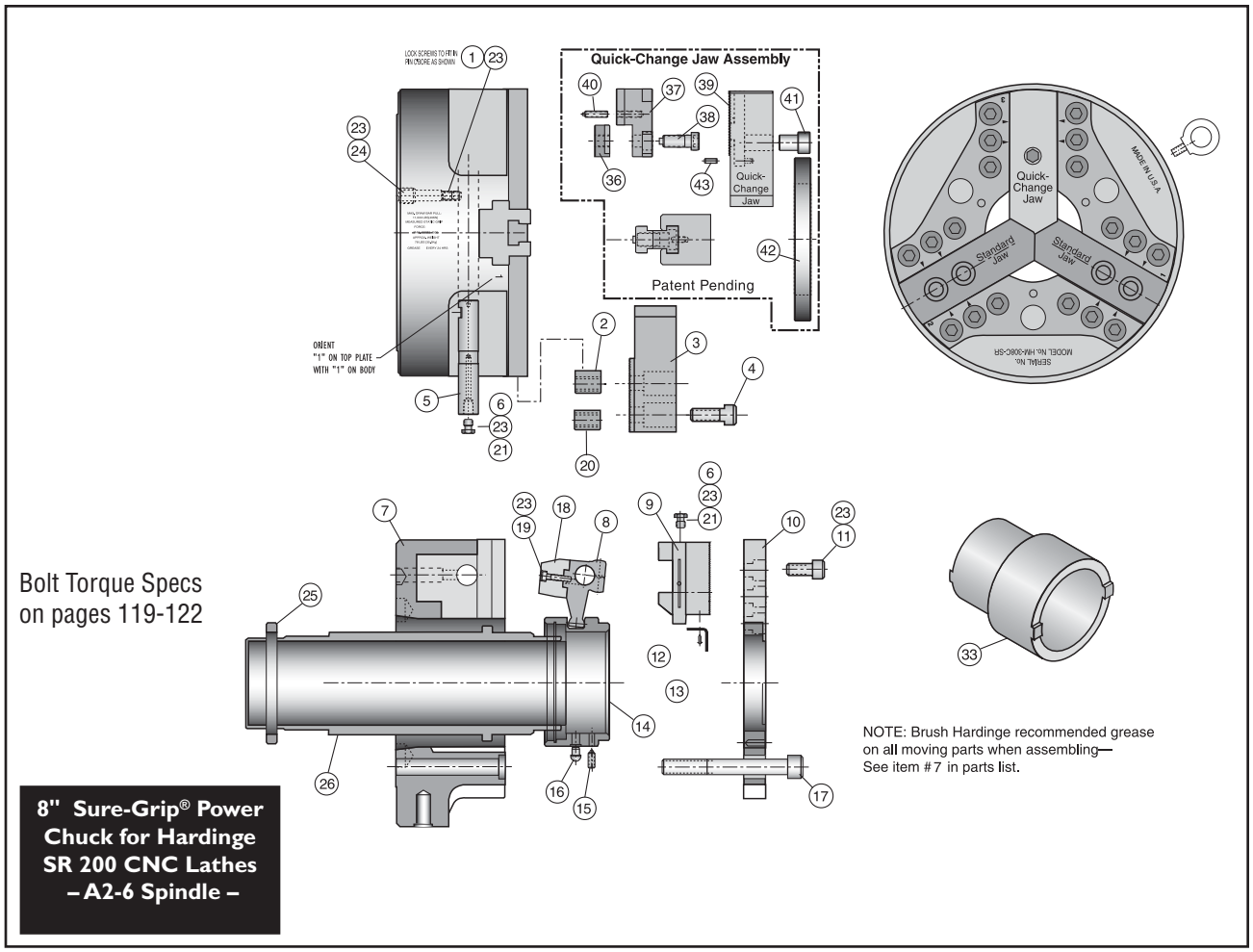
Quick-Change Parts

Top Jaws for Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for standard Chucks)
8MSHF	SC 2000119	Standard Height Soft Flat Top Jaw
8MMHF	SC 2000120	Medium Height Soft Flat Top Jaw
8MSHPL	SC 2000603	Standard Height Soft Pointed Top Jaw
8MMHP	SC 2000123	Medium Height Soft Pointed Top Jaw
8MH1	SC 2000121	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks)**
8MQP2	SC 2000727	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision.

(This inspection should be done after the chuck has been removed from the lathe spindle.)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the jaws with the T-nuts (2) (20) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (39) one full turn; Remove Quick-Change Top Jaw (40); Again loosen bolt (39) 1/2 turn. Slide I-beam assembly off (37) (38) (43) master jaw.
- Remove the eighteen socket-head cap screws (11) from the top plate.
- Remove the top plate (10).
- Remove the three master jaws (9). It is not necessary to disassembly Items (6) (12) (13).
- Remove three set screws (24), record depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Lever/counterweight assembly (8) (18) (19). Do not disassemble.
- Remove Chuck Draw Bar (14). Do not disassemble item (15) (16).
  Check all parts including mounting bolts (4) (11) (17) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (23) on bolts (1)(11)(24).
- Use pressure gun with adapter (27), grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun with adapter (27), lightly grease master jaws (9) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 10" Chuck Assembly for Hardinge® Lathes—A2-6 Spindle

Assemblies for Hardinge CNC Lathes: (1.5mm x 60°) Master Jaws

Model No.	Part Number	Description
HM310-6	SCD 2000310A26H	Standard Chuck for Hardinge CONQUEST® T42BB & 51, Cobra® 51, QUEST® & ELITE® 51, RS 51
HM310-6Q	SCA 2070310A26H	Quick-Change Chuck for Hardinge CONQUEST® T42BB & 51, Cobra® 51, QUEST® & ELITE® 51, RS 51
HMQ310-6	SCA 2000310 A26Q	Standard Chuck – A2-6, 25C Spindle for Hardinge QUEST® 10/65, RS 65
HMQ310-6Q	SCA 2070310A26Q	Quick-Change Chuck – A2-6, 25C Spindle for Hardinge QUEST® 10/65, RS 65

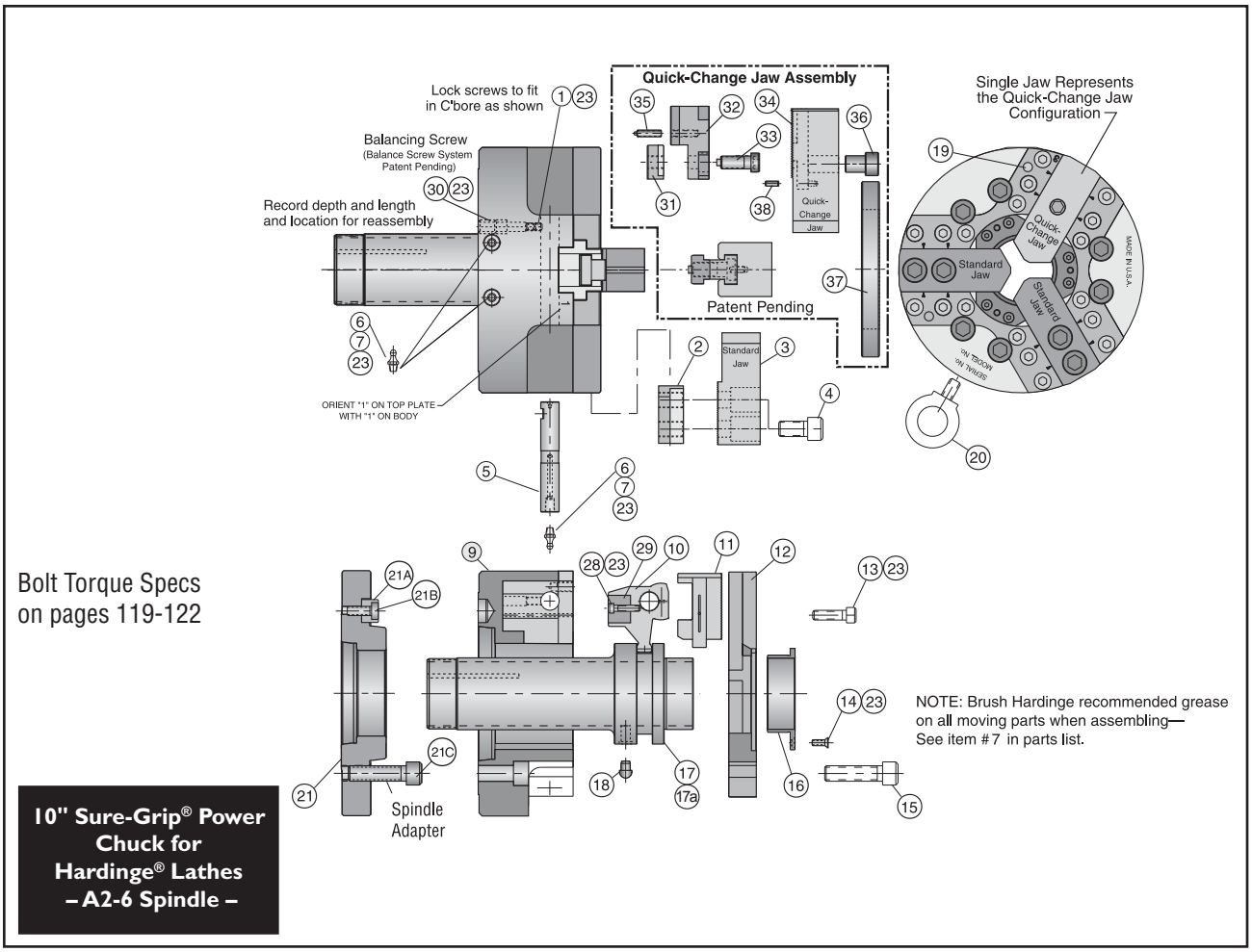
Item	Qty	Part Number	Description	
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
2	3	SC 0000165	"T" Nut- for Metric Serrated Jaws - Must Use Hardinge "T" Nuts	
3	3	SC 2000166	Soft Top Jaw	
4	6	MS 0104220	Socket Head Cap Screw [M12x1.75 x 30mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
5	3	SC 0000160	Pin	
6	9	DV 0010327	Fitting, Alemite No. 1610-BL	
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)	
9	1	replacement N/A	10" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)	
10	3	SC 0000158	Lever	
11	3	SCB 0000164	Master Jaw with Metric Serrations (1.5mm x 60°)	
12	1	SCA 0000561	Top Plate	
13	18	MS 0104021	Socket Head Cap Screw [M10x1.5 x 35mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
14	6	MS 0303615	Button Head Screw [M6x1.0x10mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
15	3	MS 0104626	Socket Head Cap Screw [M16x2x60mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
16	3	SCA 0000563	Chip Shield	
17	1	SC 0000186	Chuck Draw Bar for (CONQUEST® T42BB & 51, Cobra® 51, QUEST® & ELITE® 51, RS 51)	
17a	1	SC 0000562	Chuck Draw Bar for (QUEST® 10/65, RS 65)	
18	1	SCA 0000153	Key	
19	3	CE 0097248	3/8" x 1.5 Pull Dowel	
20	1	CE 0000012	Eye Bolt, Reid MEB-12	
21	1	SC 0000181	A2-6 to A2-8 Spindle Adapter (not required for QUEST® 10/65)	
21A	1	CL 0011920	Drive Button	
21B	1	CL 0011920 01	Drive Button Screw	
21C	6	MS 0104221	Socket Head Cap Screw [M12x1.75x35mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
23	0	NC 0010884	Loctite #242	
24	1	B 0009500 0087	Safety and Technical Manual	
28	3	MS 0103519	Socket Head Cap Screw [M5x.8x25mm]	
29	3	SC 0000187	Counterweight	
30	3	MS 0554219 SS	Set Screw [M12x1.75x25mm] Balancing Screws – Lengths may vary	
Kit	**1**	**SC 2000701QC**	**Quick-Change Kit** includes all parts listed below:	Quick-Change Parts
31	3	SC 0000702	T-Nut	
32	3	SC 0000700	I-Beam	
33	3	SC 0000703	Screw	
34	3	SC 2000701	Top Jaw	
35	3	CE 0000004AN	Spring Plunger	
36	3	SC 0000705	Boring Pin	
37	1	SC 0000704	Boring Ring	
38	3	TL 0006615	Dowel Pin	

Top Jaws for HardInge Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for standard Chucks)
10MSHF	SC 2000169	Standard Height Soft Flat Top Jaw
10MMHF	SC 2000170	Medium Height Soft Flat Top Jaw
10MSHP	SC 2000166	Standard Height Soft Pointed Top Jaw
10MMHP	SC 2000173	Medium Height Soft Pointed Top Jaw
10MH1	SC 2000171	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks**
10MQP1	SC 2000701	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn.
  Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove eighteen socket-head cap screws (13) from the top plate.
- Remove the top plate (12). The chip shield (16) does not have to be removed.
- Remove the three master jaws (11).
- Remove three set screws (30) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (10).
- Remove Chuck Draw Bar (17). Do not disassemble item (18) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (15) (21B) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (23) on bolts (1)(13)(14)(30).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (11) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 10" Chuck Assembly for Hardinge® Lathes—A2-8 Spindle

Assemblies for Hardinge CONQUEST® T51BB & T65 and COBRA® 65 CNC Lathes:

Model No.	Part Number	Description
HM310-8	SCD 2000310 A28H	Standard Chuck – 1.5mm x 60° Master Jaws
HM310-8Q	SCA 2070310 A28H	Quick-Change Chuck – 1.5mm x 60° Master Jaws

Parts List:

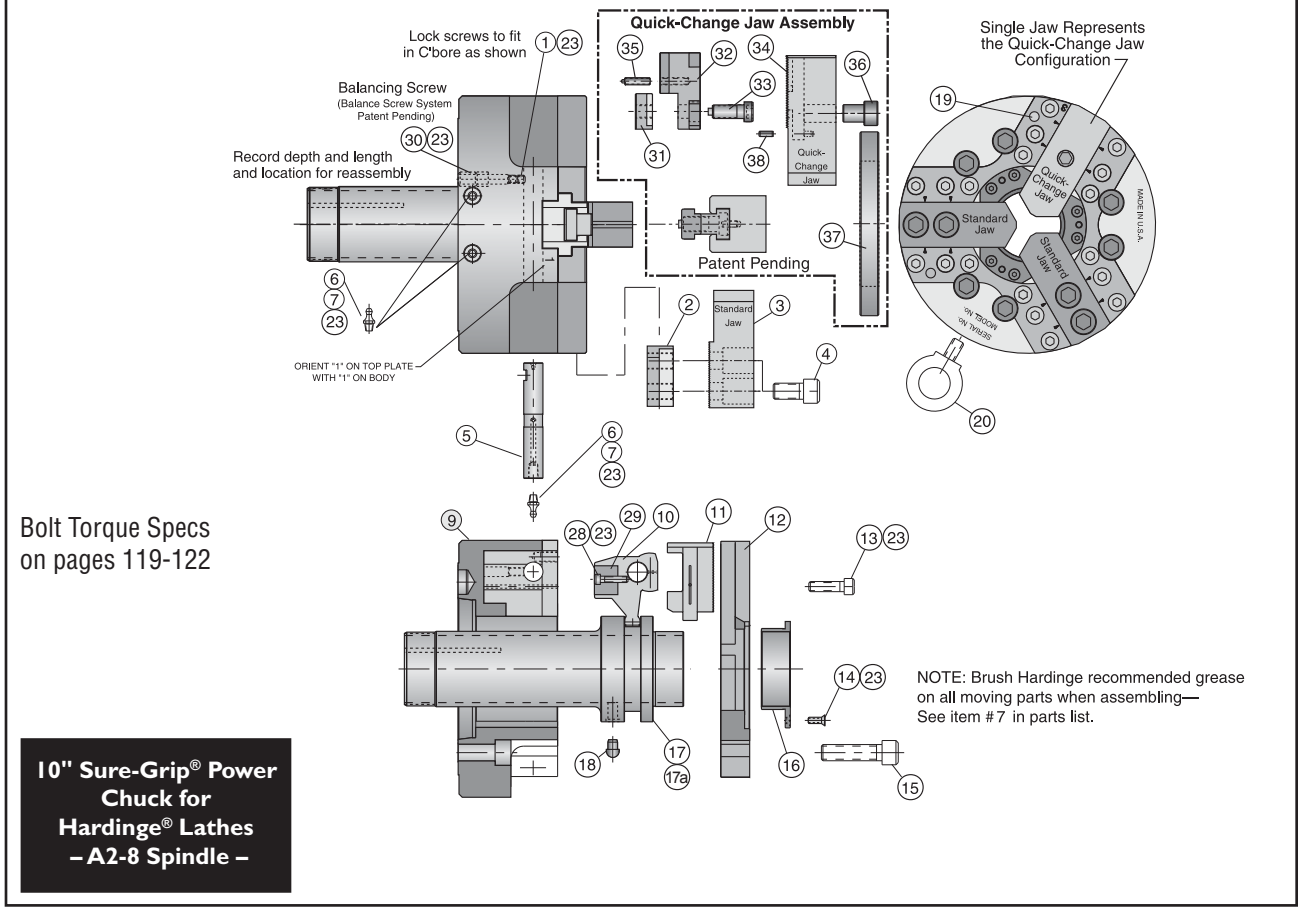
Item	Qty	Part Number	Description	
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
2	3	SC 0000165	"T" Nut- for Metric Serrated Jaws - Must Use Hardinge "T" Nuts	
3	3	SC 2000166	Soft Top Jaw	
4	6	MS 0104220	Socket Head Cap Screw [M12x1.75 x 30mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
5	3	SC 0000160	Pin	
6	9	DV 0010327	Fitting, Alemite No. 1610-BL	
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)	
9	1	replacement N/A	10" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)	
10	3	SC 0000158	Lever	
11	3	SCB 0000164	Master Jaw with Metric Serrations (1.5mm x 60°)	
12	1	SCA 0000156	Top Plate	
13	18	MS 0104021	Socket Head Cap Screw [M10x1.5 x 35mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
14	6	MS 0303615	Button Head Screw [M6x1.0x10mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
15	3	MS 0104626	Socket Head Cap Screw [M16x2x60mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)	
16	3	SCA 0000563	Chip Shield	
17	1	SC 0000154	Chuck Draw Bar for Hardinge (CONQUEST® T51BB & T65, Cobra® 65)	
18	1	SCA 0000153	Key	
19	3	CE 0097248	3/8" x 1.5 Pull Dowel	
20	1	CE 0000012	Eye Bolt, Reid MEB-12	
22	0	NC 0010884	Loctite #242	
23	1	B 0009500 0087	Safety and Technical Manual	
27	3	MS 0103520	Socket Head Cap Screw [M5x.8x30mm]	
28	3	SC 0000187	Counterweight	
29	3	MS 0554219 SS	Set Screw [M12x1.75x25mm] Balancing Screws – Lengths may vary	
Kit	**1**	**SC 2000701QC**	**Quick-Change Kit** includes all parts listed below	Quick-Change Parts
30	3	SC 0000702	T-Nut	
31	3	SC 0000700	I-Beam	
32	3	SC 0000703	Screw	
33	3	SC 2000701	Top Jaw	
34	3	CE 0000004AN	Spring Plunger	
35	3	SC 0000705	Boring Pin	
36	1	SC 0000704	Boring Ring	
37	3	TL 0006615	Dowel Pin	

Top Jaws for Hardinge Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

Model No.	Part Number	Description
10MSHF	SC 2000169	Standard Height Soft Flat Top Jaw
10MMHF	SC 2000170	Medium Height Soft Flat Top Jaw
10MSHP	SC 2000166	Standard Height Soft Pointed Top Jaw
10MMHP	SC 2000173	Medium Height Soft Pointed Top Jaw
10MH1	SC 2000171	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description**
10MQP1	SC 2000701	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn. Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove eighteen socket-head cap screws (13) from the top plate.
- Remove the top plate (12). The chip shield (16) does not have to be removed.
- Remove the three master jaws (11).
- Remove three set screws (29) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (10).
- Remove Chuck Draw Bar (17). Do not disassemble item (18) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (16) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(13)(14)(29).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (11) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 10" Chuck Assembly for Hardinge®-EMAG VL5 Lathes–A2-6 Spindle

Assembly for Hardinge-EMAG VL5 Lathes:

Model No.	Part Number	Description
HM-310-6E	SC 2200310 A26E	Standard Chuck – 1.5mm x 60° Master Jaw Serrations

Parts List:

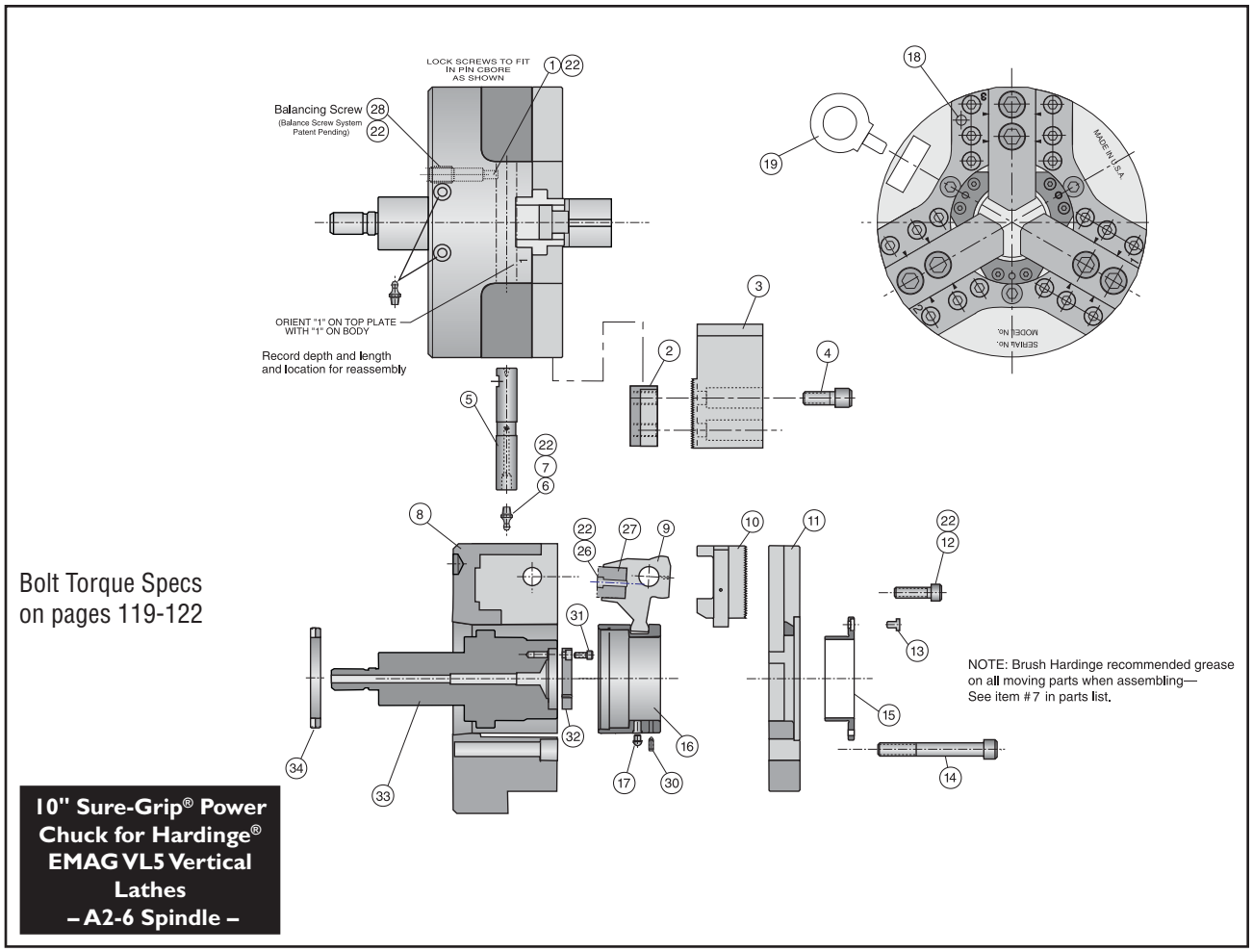
Item	Qty	Part Number	Description
1	6	MS 0573814	Socket Set Screw-Flat [M8x1.25x8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000165	"T" Nut - for Metric Serrations - .787" spacing for Hard & Soft Jaws - Must Use Hardinge "T" Nuts
3	3	SC 2000599	Soft Top Jaw
4	6	MS 0104220	Socket Head Cap Screw [M12x1.75x25mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000160	Pin
6	9	DV 0010327	Fitting, Alemite No. 1610-BL
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
8	1	replacement N/A	Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
9	3	SC 0000158	Lever
10	3	SCA 0000164	Master Jaw with Metric Serrations
Kit	1	SCB 2000014 S	Three Master Jaws (9), Shields (12), Escutcheon Pins (13)
11	1	SC 0000561	Top Plate
12	18	MS 0104021	Socket Head Cap Screw [M10-1.5x35mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
13	6	MS 0303615	Screw [M6-1.0x10mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
14	3	MS 0104232	Socket Head Cap Screw [M12-1.75x100mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	1	SC 0000563	Chip Shield
16	1	SC 0000602	Chuck Draw Bar (Draw Head)
17	1	SCA 0000003	Key
18	1	CE 0097248	3/8" x 1.5 Pull Dowel
19	1	CE 0000012	Eye Bolt
21	1	B 0009500 0087	Safety and Technical Manual
22	0	NC 0010884	Loctite #242
26	3	MS 0103520	Socket Head Cap Screw [M5-.8x30mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
27	3	SC 0000187	Counter Weight
28	3	MS 0554219 SS	Balancing Set Screw [M12x1.75x25mm] Length of screws may vary
30	1	CE 1032468	Stubby Plunger [10-32x15/32]
31	3	MS 0103516	Socket Head Cap Screw [M5x.8x12mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
32	1	SC 0000587	Cover Plate
33	1	SC 0000601	Draw Bar Link
34	1	SC 0000524	Nut
35	1	SC 0000592	Mounting Fixture
36	1	SC 0000525	Wrench for Installing Link

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

Top Jaws for Standard Hardinge Sure-Grip Chucks—1.5mm x 60° Metric Serrations

Model No.	Part Number	Description
10MSHF	SC 2000169	Standard Height Soft Flat Top Jaw
10MMHF	SC 2000170	Medium Height Soft Flat Top Jaw
10MSHP	SC 2000166	Standard Height Soft Pointed Top Jaw
10MHP	SC 2000599	Medium Height Soft Pointed Top Jaw
10MH1	SC 2000171	Hard Single Step Top Jaw

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision
(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
- Remove eighteen socket-head cap screws (11) from the top plate.
- Remove the top plate (10). The chip shield (12) does not have to be removed.
- Remove the three master jaws (9).
- Remove three set screws (28) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Lever/counterweight assembly (9) (26) (27).
- Remove Chuck Draw Bar assembly (16) (32) (33) (34). Disassembly not required.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (12) (14) (17) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(11)(28).
- Use pressure gun with adapter (20) to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun with adapter (20) to lightly grease master jaws (10) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 10" Chuck Assembly for Hardinge® VT100/VT200 Vertical Lathes – A2-8 & A2-11 Spindle

Assemblies for Hardinge VT100 & VT200 Vertical Lathes:

Model No.	Part Number	Description
HVM-310-8	SCC 2000310A28V	Standard Chuck – 1.5mm x 60° Master Jaws (VT100)
HVM-310-8Q	SCA 2070310A28V	Quick-Change Chuck – 1.5mm x 60° Master Jaws (VT100)
HVM-310-11	SCC 2000310A11V	Standard Chuck – 1.5mm x 60° Master Jaws (VT200)
HVM-310-11Q	SCA 2070310A11V	Quick-Change Chuck – 1.5mm x 60° Master Jaws (VT200)

Item	Qty	Part Number	Description
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000165	"T" Nut - for Metric Serrated Jaws - Must Use Hardinge "T" Nuts
3	3	SC 2000166	Soft Top Jaw
4	6	MS 0104220	Socket Head Cap Screw [M12x1.75 x 30mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000160	Pin
6	9	DV 0010327	Fitting, Alemite No. 1610-BL
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
8	3	SC 0000151	"T" Nut - Must Use Hardinge "T" Nuts For Inch Jaws
9	1	replacement N/A	10" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
10	3	SC 0000158	Lever
11	3	SCB 0000164	Master Jaw with Metric Serrations (1.5mm x 60°)
12	1	SCA 0000156	Top Plate
13	18	MS 0104021	Socket Head Cap Screw [M10x1.5 x 35mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
14	6	MS 0313616	Flat Head Screw [M6x1.0x12mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	3	MS 0104626	Socket Head Cap Screw [M16x2x60mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
16	3	SC 0000185	Chip Shield
17	1	SC 0000163	Chuck Draw Bar
18	1	SCA 0000153	Chuck Key
19	2	CE 0097248	3/8" x 1.5 Pull Dowel
20	1	CE 0000012	Eye Bolt, Reid MEB-12
21	1	SC 0000182	Draw Bar for Hardinge CONQUEST®VT-100 (4.125"/104.7mm Long)
21A	1	SC 0000183	Draw Bar for Hardinge CONQUEST®VT-200 (6.00"/152.4mm Long)
22	1	SC 0000184	Draw Bar Bushing
23	6	MS 0103822	Socket Head Cap Screw [M8x1.25 x 40mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
25	1	SC 0000152	A2-11 to A2-8 Spindle Adapter (Only for SCB 2000310A11V)
25A	1	CL 0011920 02	Drive Button
25B	1	CL 0011920 03	Drive Button Screw
25C	6	MS 0104822	Socket Head Cap Screw [M18x2.5x40mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
26	0	NC 0010884	Loctite #242
28	1	B 0009500 0087	Safety and Technical Manual
32	3	MS 0103519	Set Screw [M5x.8x25mm]
33	3	SC 0000187	Counterweight
34	3	MS 0554219 SS	Set Screw [M12x1.75x25mm] Balancing Screws – Lengths may vary
35	1	OR 0005254	O Ring [3-1/4 ID 1/16 CS]
Kit	**1**	**SC 2000701QC**	**Quick-Change Kit** includes all parts listed below:
36	3	SC 0000702	T-Nut
37	3	SC 0000700	I-Beam
38	3	SC 0000703	Screw
39	3	SC 2000701	Top Jaw
40	3	CE 0000004AN	Spring Plunger
41	3	SC 0000705	Boring Pin
42	1	SC 0000704	Boring Ring
43	3	TL 0006615	Dowel Pin

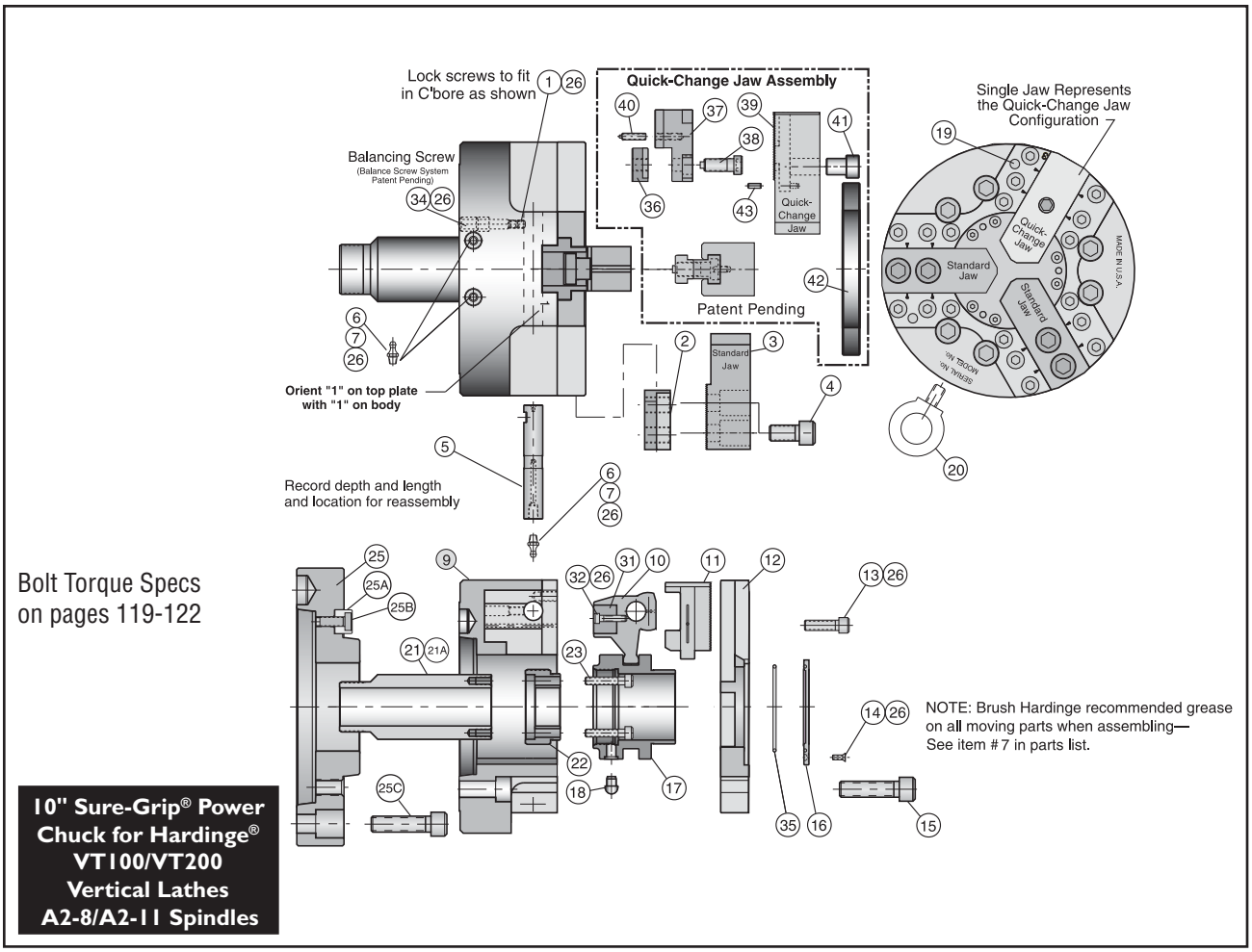
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.

Model No.	Part Number	Description (for standard Chucks)
10MSHF	SC 2000169	Standard Height Soft Flat Top Jaw
10MMHF	SC 2000170	Medium Height Soft Flat Top Jaw
10MSHP	SC 2000166	Standard Height Soft Pointed Top Jaw
10MMHP	SC 2000173	Medium Height Soft Pointed Top Jaw
10MH1	SC 2000171	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description**
10MQP1	SC 2000701	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn. Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove eighteen socket head cap screws (13) from the top plate.
- Remove the top plate (12). The chip shield (16) does not have to be removed.
- Remove the three master jaws (11).
- Remove three set screws (32) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (10).
- Remove Chuck Draw Bar (17). Do not disassemble item (18) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (16) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (26) on bolts (1)(13)(14)(32)(34).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (11) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 10" Chuck Assembly for Hardinge and Other CNC Lathes—A2-8 Spindle—B-Version

Assemblies for Hardinge Talent 10/78, GS 250 and Other brand CNC Lathes: B-Version

Model No.	Part Number	Description
CM2-310B-8	SCC 2200310 A28C	Standard Chuck – A2-8 Spindle – 1.5mm x 60° Master Jaw Serrations (Other brands)
CM2-310B-8Q	SCA 2270310 A28C	Quick-Change Chuck – A2-8 Spindle – 1.5mm x 60° Master Jaw Serrations (Other brands)
TM2-310B-8	SC 2200310 A28T	Standard Chuck for Hardinge Talent 10/78 and GS 250 CNC Lathes
TM2-310B-8Q	SC 2270310 A28T	Quick-Change Chuck for Hardinge Talent 10/78 and GS 250 CNC Lathes

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000165	"T" Nut for Metric Serrated Jaws - Must Use Hardinge "T" Nuts
3	3	SC 2000166	Soft Top Jaw
4	6	MS 0104220	Socket Head Cap Screw [M12x1.75 x 30mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000160	Pin
6	9	DV 0010327	Fitting, Alemite No. 1610-BL
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
8	3	SC 0000187	Counterweight
9	1	replacement N/A	10" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
10	3	SC 0000458	Lever
11	3	SCB 0000164	Master Jaw with Metric Serrations (1.5mm x 60°)
12	1	SCA 0000456	Top Plate
13	18	MS 0104021	Socket Head Cap Screw [M10x1.5 x 35mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
14	6	MS 0303615	Button Head Screw [M6x1.0x10mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	3	SCA 0000455	Chip Shield
16	6	0101836	Socket head Cap Screw (5/8"-011 x 2-1/4") (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
17	3	MS 0104626	Socket Head Cap Screw [M16x2x60mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
18	1	SCA 0000153	Key
19	3	CE 0097248	3/8" x 1.5 Pull Dowel
20	1	CE 0000012	Eye Bolt, Reid MEB-12
22	0	NC 0010884	Loctite #242
23	1	B 0009500 0087	Safety and Technical Manual
27	3	MS 0103520	Socket Head Cap Screw [M5x.8x30mm]
28	3	MS 0554219 SS	Set Screw [M12x1.75x25mm] Balancing Screws – Lengths may vary
29	1	SC 0000488	Chuck Draw Bar (Draw Head) A2-8 Spindle
30	1	CE 2520531	Stubby Plunger (1/4"-20 x 1")
31	1	SC 0000489	Draw Bar Link
31a	1	SC 0000811	Draw Bar Link for Hardinge (Talent 10/78, GS 250)
32	1	SC 0000490	Nut
33	1	SC 0000491	Special Wrench for Link
Kit	**1**	**SC 2000701QC**	**Quick-Change Kit** includes all parts listed below:
36	3	SC 0000702	T-Nut
37	3	SC 0000700	I-Beam
38	3	SC 0000703	Screw
39	3	SC 2000701	Top Jaw
40	3	CE 0000004AN	Spring Plunger
41	3	SC 0000705	Boring Pin
42	1	SC 0000704	Boring Ring
43	3	TL 0006615	Dowel Pin

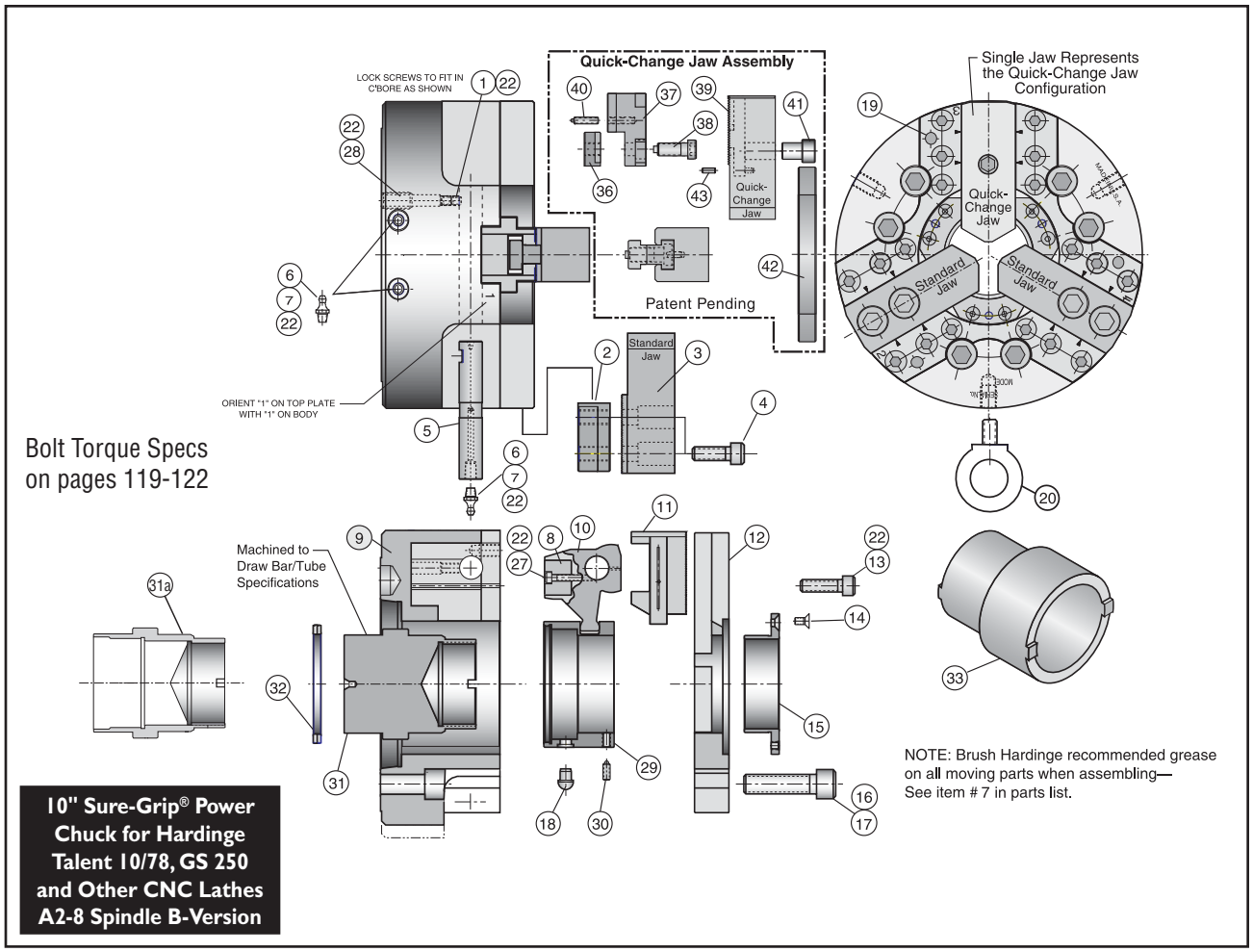
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.

Model No.	Part Number	Description
10MSHF	SC 2000169	Standard Height Soft Flat Top Jaw
10MMHF	SC 2000170	Medium Height Soft Flat Top Jaw
10MSHP	SC 2000166	Standard Height Soft Pointed Top Jaw
10MMHP	SC 2000173	Medium Height Soft Pointed Top Jaw
10MH1	SC 2000171	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description**
10MQP1	SC 2000701	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn. Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove eighteen socket-head cap screws (13) from the top plate.
- Remove the top plate (12). The chip shield (15) does not have to be removed.
- Remove the three master jaws (11).
- Remove three set screws (28) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (10).
- Remove Chuck Draw Bar (29). Do not disassemble item (18) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (16) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(13)(14)(29).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (11) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 10" Chuck Assembly for Other CNC Lathes—A2-8 Spindle—Large Bore

Assemblies for Other brand Large-Bore CNC Lathes: C-Version

Model No.	Part Number	Description
CM2-310C-8	SCA 2300310 A28C	Standard Chuck, A2-8 Spindle – 1.5mm x 60° Master Jaw Serrations
CM2-310C-8Q	SCA 2270310 A28C	Quick-Change Chuck, A2-8 Spindle - 1.5mm x 60° Master Jaw Serrations

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000165	"T" Nut for Metric Serrated Jaws - Must Use Hardinge "T" Nuts
3	3	SC 2000166	Soft Top Jaw
4	6	MS 0104220	Socket Head Cap Screw [M12x1.75 x 30mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000160	Pin
6	9	DV 0010327	Fitting, Alemite No. 1610-BL
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
8	1	CE 2520531	Stubby Plunger (1/4"-20 x 1")
9	1	replacement N/A	10" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
10	3	SC 0000458	Lever
11	3	SCB 0000164	Master Jaw with Metric Serrations (1.5mm x 60°)
12	1	SC 0000550	Top Plate
13	18	MS 0104021	Socket Head Cap Screw [M10x1.5 x 35mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
14	6	MS 0303615	Button Head Screw [M6x1.0x10mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	3	MS 0104626	Socket Head Cap Screw [M16x2x60mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
16	3	SC 0000555	Chip Shield
17	1	SC 0000552	Chuck Draw Bar (Draw Head) A2-8 Spindle
18	1	SCA 0000153	Key
19	3	CE 0097248	3/8" x 1.5 Pull Dowel
20	1	CE 0000012	Eye Bolt, Reid MEB-12
21	1	SC 0000553	Draw Bar Link
22	0	NC 0010884	Loctite #242
23	1	SC 0000554	Nut
24	3	MS 0554219 SS	Set Screw [M12x1.75x25mm] Balancing Screws – Lengths may vary
26	1	B 0009500 0087	Safety and Technical Manual
27	3	MS 0103520	Socket Head Cap Screw [M5x.8x30mm]
28	3	SC 0000187	Counterweight
29	1	SC 0000556	Special Wrench for Link
Kit	**1**	**SC2000706QC**	**Quick-Change Kit** includes all parts listed below:
36	3	SC 0000702	T-Nut
37	3	SC 0000700	I-Beam
38	3	SC 0000703	Screw
39	3	SC 2000706	Top Jaw
40	3	CE 0000004AN	Spring Plunger
41	3	SC 0000705	Boring Pin
42	1	SC 0000707	Boring Ring
43	3	TL 0006615	Dowel Pin

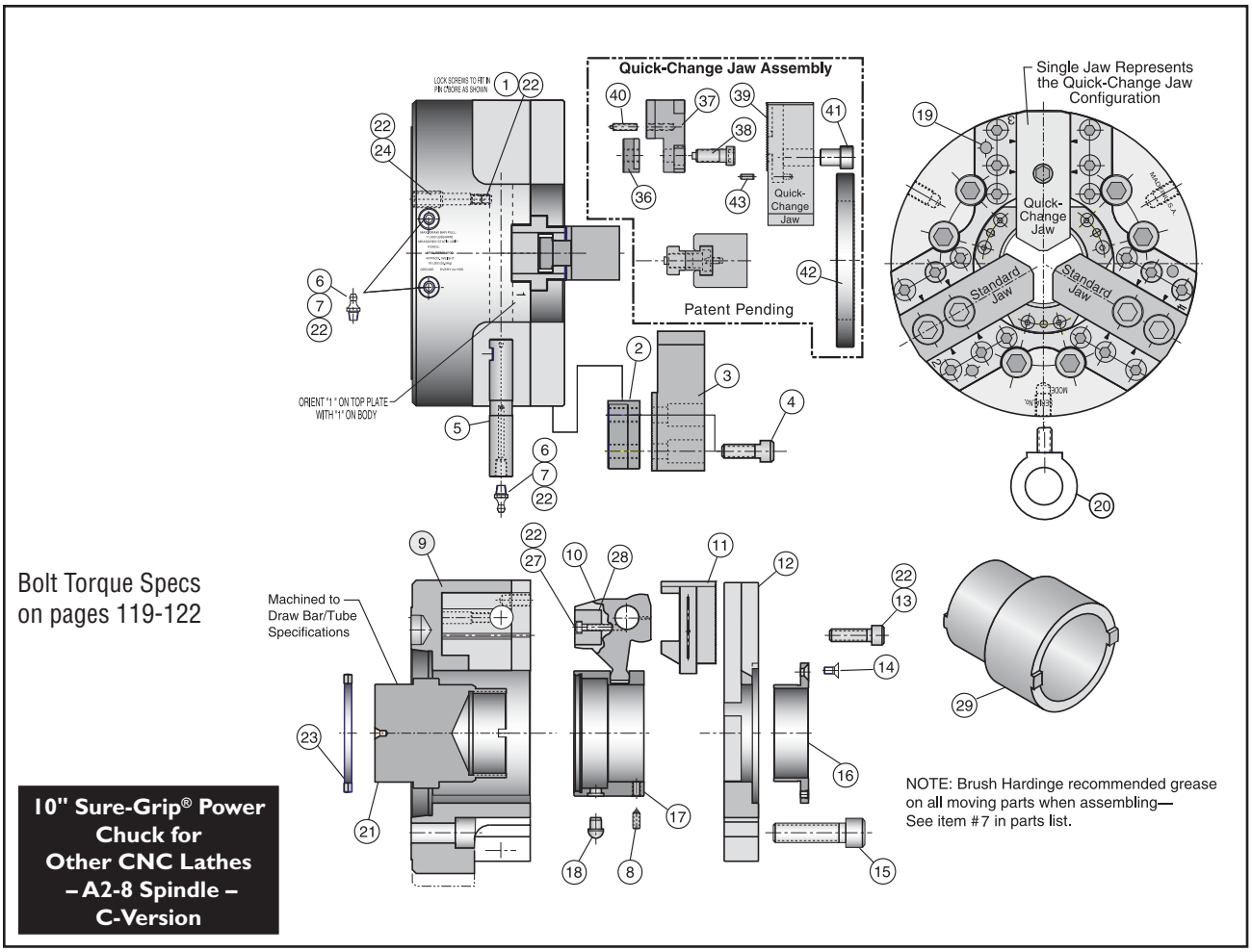
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for standard Chucks)
10MSHF	SC 2000169	Standard Height Soft Flat Top Jaw
10MMHF	SC 2000170	Medium Height Soft Flat Top Jaw
10MSHP	SC 2000166	Standard Height Soft Pointed Top Jaw
10MMHP	SC 2000173	Medium Height Soft Pointed Top Jaw
10MH1	SC 2000171	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks)**
10MQP2	SC 2000706	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection – Every 6 Months or After an Accident or Collision.

(This inspection should be done after the chuck has been removed from the lathe spindle.)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn. Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove eighteen socket-head cap screws (13) from the top plate.
- Remove the top plate (12). The chip shield (16) does not have to be removed.
- Remove the three master jaws (11).
- Remove three set screws (24) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (10).
- Remove Chuck Draw Bar (17). Do not disassemble item (18) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (16) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(13)(14)(24).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (11) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 10" Chuck Assembly for Hardinge SR 250 CNC Lathes—A2-8 Spindle

Assemblies for SR 250 CNC Lathes:

Model No.	Part Number	Description
HM-310-SR	SC 2300310 A8SR	Standard Chuck – A2-8 Spindle – 1.5mm x 60° Master Jaw Serrations
HM-310-SRQ	SC 2370310 A8SR	Quick-Change Chuck – A2-8 Spindle – 1.5mm x 60° Master Jaw Serrations

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000165	"T" Nut for Metric Serrated Jaws - Must Use Hardinge "T" Nuts
3	3	SC 2000166	Soft Top Jaw
4	6	MS 0104220	Socket Head Cap Screw [M12x1.75 x 30mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000160	Pin
6	9	DV 0010327	Fitting, Alemite No. 1610-BL
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
8	1	CE 2520531	Stubby Plunger (1/4"-20 x 1")
9	1	replacement N/A	10" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
10	3	SC 0000458	Lever
11	3	SCB 0000164	Master Jaw with Metric Serrations (1.5mm x 60°)
12	1	SC 0000550	Top Plate
13	18	MS 0104021	Socket Head Cap Screw [M10x1.5 x 35mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
14	6	MS 0303615	Button Head Screw [M6x1.0x10mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	3	MS 0104626	Socket Head Cap Screw [M16x2x60mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
16	3	SC 0000555	Chip Shield
17	1	SC 0000552	Chuck Draw Bar (Draw Head) A2-8 Spindle
18	1	SCA 0000153	Key
19	3	CE 0097248	3/8" x 1.5 Pull Dowel
20	1	CE 0000012	Eye Bolt, Reid MEB-12
21	1	SC 0000553-SR	Draw Bar Link for Hardinge (SR 250)
22	0	NC 0010884	Loctite #242
23	1	SC 0000554	Nut
24	3	MS 0554216 SS	Set Screw [M12x1.75x12mm] Balancing Screws – Lengths may vary
26	1	B 0009500 0087	Safety and Technical Manual
27	3	MS 0103520	Socket Head Cap Screw [M5x.8x30mm]
28	3	SC 0000187	Counterweight
29	1	SC 0000556	Special Wrench for Link
34	6	0101836	Socket head Cap Screw {5/8"-11 x 2-1/4"} (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
Kit	**1**	**SC 2000701QC**	**Quick-Change Kit** includes all parts listed below:
36	3	SC 0000702	T-Nut
37	3	SC 0000700	I-Beam
38	3	SC 0000703	Screw
39	3	SC 2000701	Top Jaw
40	3	CE 0000004AN	Spring Plunger
41	3	SC 0000705	Boring Pin
42	1	SC 0000704	Boring Ring
43	3	TL 0006615	Dowel Pin

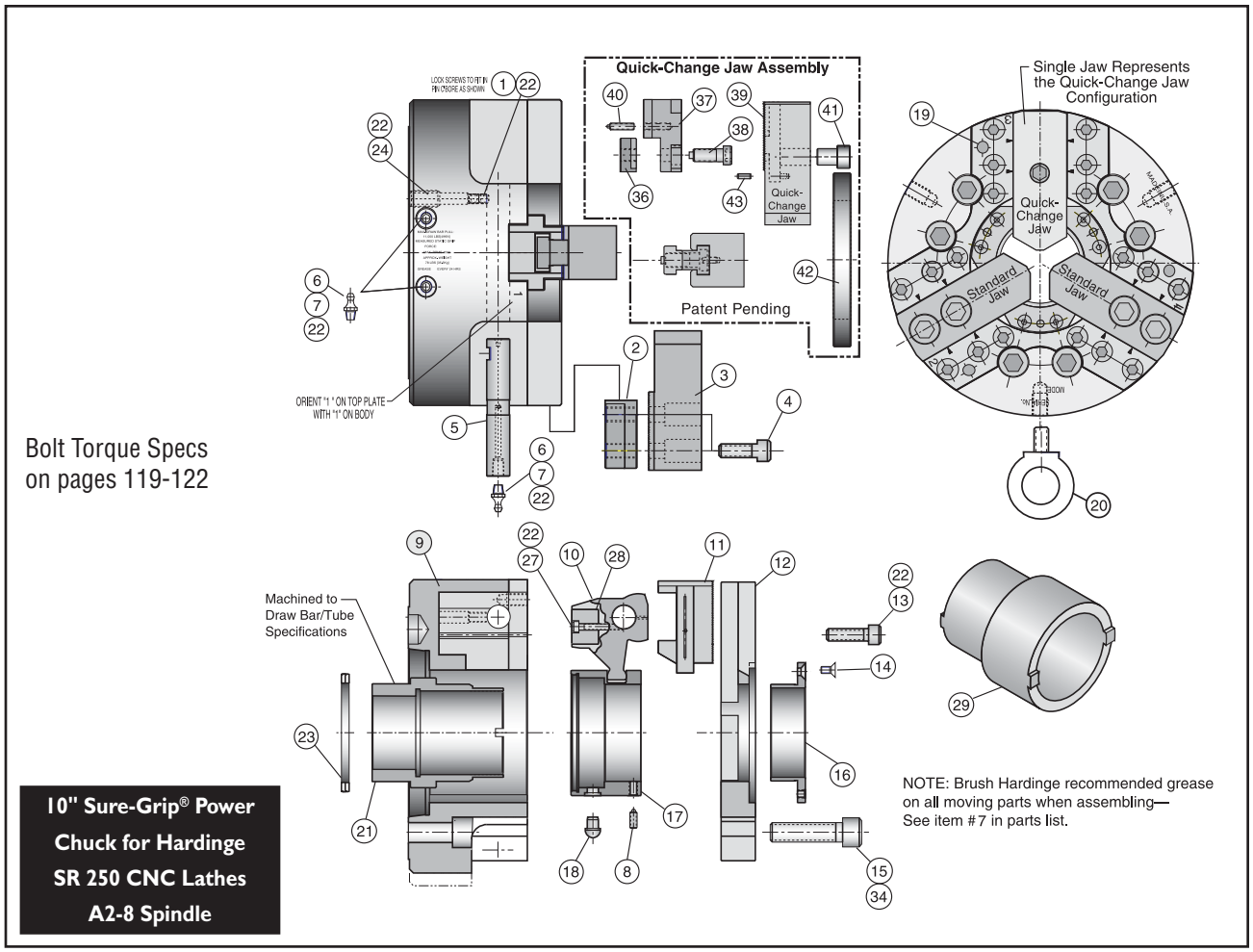
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.

Model No.	Part Number	Description
10MSHF	SC 2000169	Standard Height Soft Flat Top Jaw
10MMHF	SC 2000170	Medium Height Soft Flat Top Jaw
10MSHP	SC 2000166	Standard Height Soft Pointed Top Jaw
10MMHP	SC 2000173	Medium Height Soft Pointed Top Jaw
10MH1	SC 2000171	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description**
10MQP1	SC 2000701	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn. Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove eighteen socket-head cap screws (13) from the top plate.
- Remove the top plate (12). The chip shield (15) does not have to be removed.
- Remove the three master jaws (11).
- Remove three set screws (28) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (10).
- Remove Chuck Draw Bar (29). Do not disassemble item (18) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (16) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(13)(14)(29).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (11) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 12" Chuck Assembly for Hardinge® Lathes—A2-8 Spindle

Assemblies for Hardinge CONQUEST® T51BB & T65 and COBRA® 65 CNC Lathes:

Model No.	Part Number	Description
HM-312C-8	SCA 2300312 A28H	Standard Chuck – 1.5mm x 60° Master Jaws
HM-312C-8Q	SC 2370312 A28H	Quick-Change Chuck – 1.5mm x 60° Master Jaws

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25 x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000412	"T" Nut - for Metric Serrated Soft Jaws - Also Requires #8 - Must Use Hardinge "T" Nuts
3	3	SC 2000416	Soft Top Jaw
4	6	MS 0104622	Socket Head Cap Screw [M16 x 2 x 40mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000410	Pin
6	9	DV 0010327	Fitting, Alemite No. 1610-B
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
8	1	replacement N/A	12" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
9	6	MS 0103520	M5 x .8 x 30 SHCS
10	3	SC 0000407	Counterweight
11	3	SC 0000408	Lever
12	3	SCA 0000414	Master Jaw with Metric Serrations (1.5 mm x 60°)
13	1	SC 0000406	Top Plate
14	18	MS 0104422	Socket Head Cap Screw [M14 x 2 x 40mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	6	MS 0303615	Button Head Screw [M6 x 1 x 10mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
16	1	SC 0000405	Chip Shield
17	6	MS 0104636	Socket Head Cap Screw [M16 x 2 x 140mm]
18	1	SC 0000444	Chuck Draw Bar Link for Hardinge CONQUEST® T51 & T65, Cobra® 65
19	1	SCA 0000153	Key
21	3	MS 0554219 SS	M12 x 1.75 mm Set Screw
22	0	NC 0010884	Loctite #242
24	1	B 0009500 0087	Safety and Technical Manual
28	1	CE 0000012	Eye Bolt, Reid MEB-12
29	3	CE 3751750	3/8" x 1.75 Pull Dowel
32	1	MS 0550608	1/4-20 x .5 Socket Set Screw
33	1	SC 0000418	Chuck Draw Bar (Draw Head)
34	1	SC 0000420	Nut
Kit	**1**	**SC 2000761QC**	**Quick-Change Kit** includes all parts listed below:
36	3	SC 0000762	T-Nut
37	3	SC 0000760	I-Beam
38	3	SC0000763	Screw
39	3	SC 0000761	Top Jaw
40	3	SC 0000765	Boring Pin
41	1	SC 0000764	Boring Ring
42	3	CE 0000004AN	Spring Plunger
43	3	TL 0006615	Dowel Pin

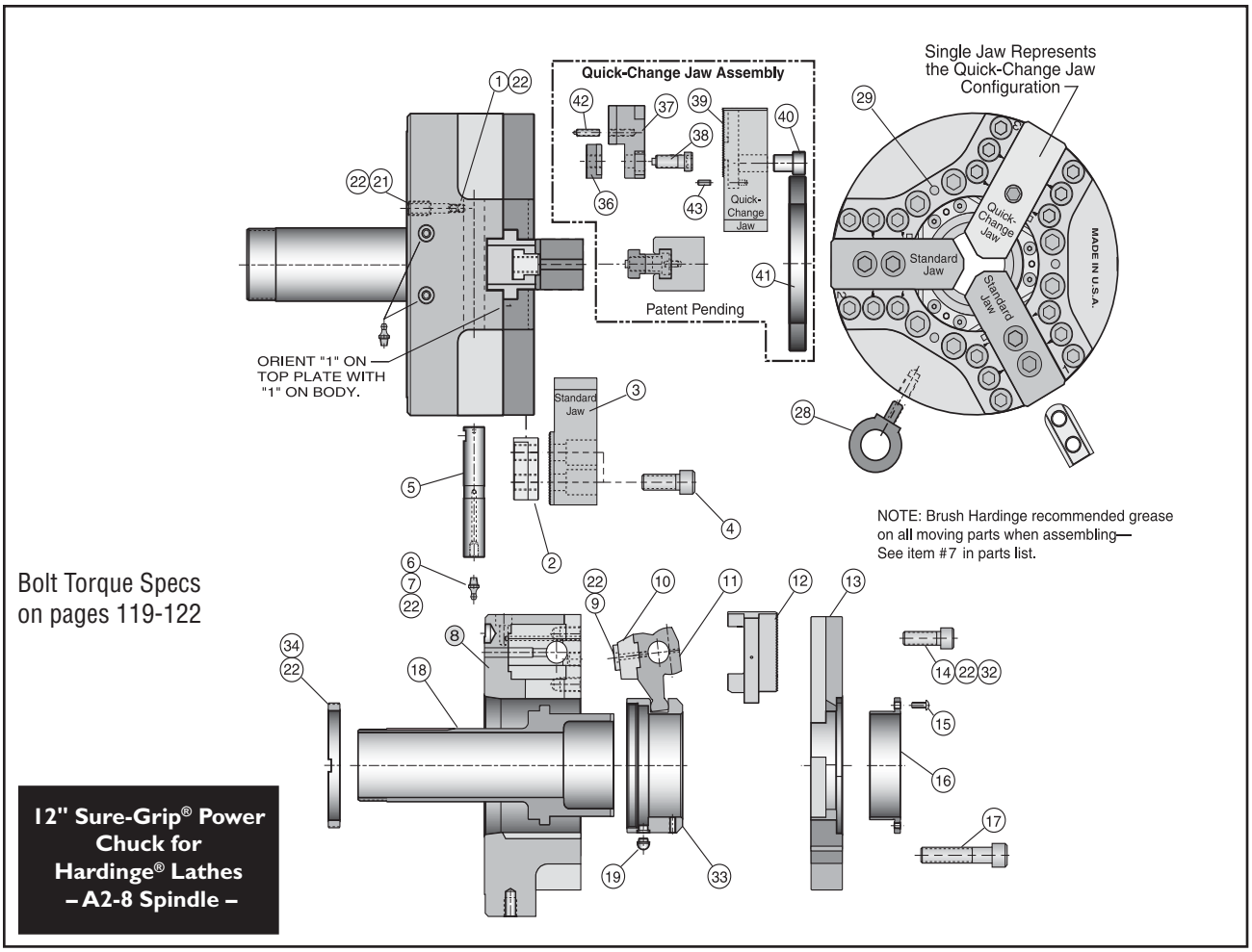
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

Model No.	Part Number	Description (for standard Chucks)
12MSHF	SC 2000426	Standard Height Soft Flat Top Jaw
12MMHF	SC 2000427	Medium Height Soft Flat Top Jaw
12MSHP	SC 2000416	Standard Height Soft Pointed Top Jaw
12MMHP	SC 2000423	Medium Height Soft Pointed Top Jaw
12MH1	SC 2000421	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description (for Quick-Change Chucks)**
12MQP1	SC 2000761	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



Periodic Safety Inspection—Every 6 Months or After an Accident or Collision

(This inspection should be done after the chuck has been removed from the lathe spindle)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn. Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove twelve socket-head cap screws (14) from the top plate.
- Remove the top plate (13). The chip shield (16) does not have to be removed.
- Remove the three master jaws (12).
- Remove three set screws (21) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (11).
- Remove Chuck Draw Bar (18). Do not disassemble item (19) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (16) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(14)(17)(32).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (12) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 12" Chuck Assembly for Hardinge® VT100/VT200 Vertical Lathes—A2-8 & A2-11 Spindle

Assemblies for Hardinge VT100 & VT200 Vertical Lathes:

Model No.	Part Number	Description
HVM 312C-8	SCA 2300312 A28V	Standard Chuck – 1.5mm x 60° Master Jaws (VT100)
HVM 312C-8 Q	SC 2370312 A28V	Quick-Change Chuck – 1.5mm x 60° Master Jaws (VT100)
HVM 312C-11	SCA 2300312 A11V	Standard Chuck – 1.5mm x 60° Master Jaws (VT200)
HVM 312C-11Q	SC 2370312 A11V	Quick-Change Chuck – 1.5mm x 60° Master Jaws (VT200)

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25 x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000412	"T" Nut - for Metric Serrated Soft Jaws - Also Requires #8 - Must Use Hardinge "T" Nuts
3	3	SC 2000416	Soft Top Jaw
4	6	MS 0104622	Socket Head Cap Screw [M16 x 2 x 40mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000410	Pin
6	9	DV 0010327	Fitting, Alemite No. 1610-B
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
8	1	replacement N/A	12" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
9	6	MS 0103520	M5 x .8 x 30 SHCS
10	3	SC 0000407	Counterweight
11	3	SC 0000408	Lever
12	3	SCA 0000414	Master Jaw with Metric Serrations (1.5 mm x 60°)
13	1	SCA 0000406	Top Plate
14	18	MS 0104422	Socket Head Cap Screw [M14 x 2 x 40mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	6	MS 0303616	Button Head Screw [M6 x 1 x 12mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
16	1	SC 0000435	Chip Shield
17	6	SC 0104636	Socket Head Cap Screw [M16 x 2 x 140mm]
18	1	SC 0000404	Chuck Draw Bar (A2-8 Spindle)
19	1	SCA 0000153	Key
20	1	CE 0002156	O Ring Parker No. 2-156
21	3	MS 0554219 SS	M12 x 1.75 mm Set Screw
22	0	NC 0010884	Loctite #242
24	1	B 0009500 0087	Safety and Technical Manual
28	3	CE 0000012	Eye Bolt, Reid MEB-12
29	3	CE 3751750	3/8" x 1.75 Pull Dowel
30	1	SC 0000432	Draw Bar for Hardinge CONQUEST®VT-100 (4.125"/104.7 mm Long)
30A	1	SC 0000183	Draw Bar for Hardinge CONQUEST®VT-200 (6.00"/152.4 mm Long)
33	6	MS 0103822	Socket Head Cap Screw [M8 x 1.25 x 40mm]
34	6	MS 0104420	Socket Head Cap Screw [M14 x 2 x 30mm]
35	1	SC 0000152	A2-11 to A2-8 Adapter - ASM
Kit	**1**	**SC 2000761QC**	**Quick-Change Kit** includes all parts listed below:
38	3	SC 0000762	T-Nut
39	3	SC 0000760	I-Beam
40	3	SC 0000763	Screw
41	3	SC 0000761	Top Jaw
42	3	SC 0000763	Boring Pin
43	1	SC 0000764	Boring Ring
44	3	CE 0000004AN	Spring Plunger
45	3	TL 0006615	Dowel Pin

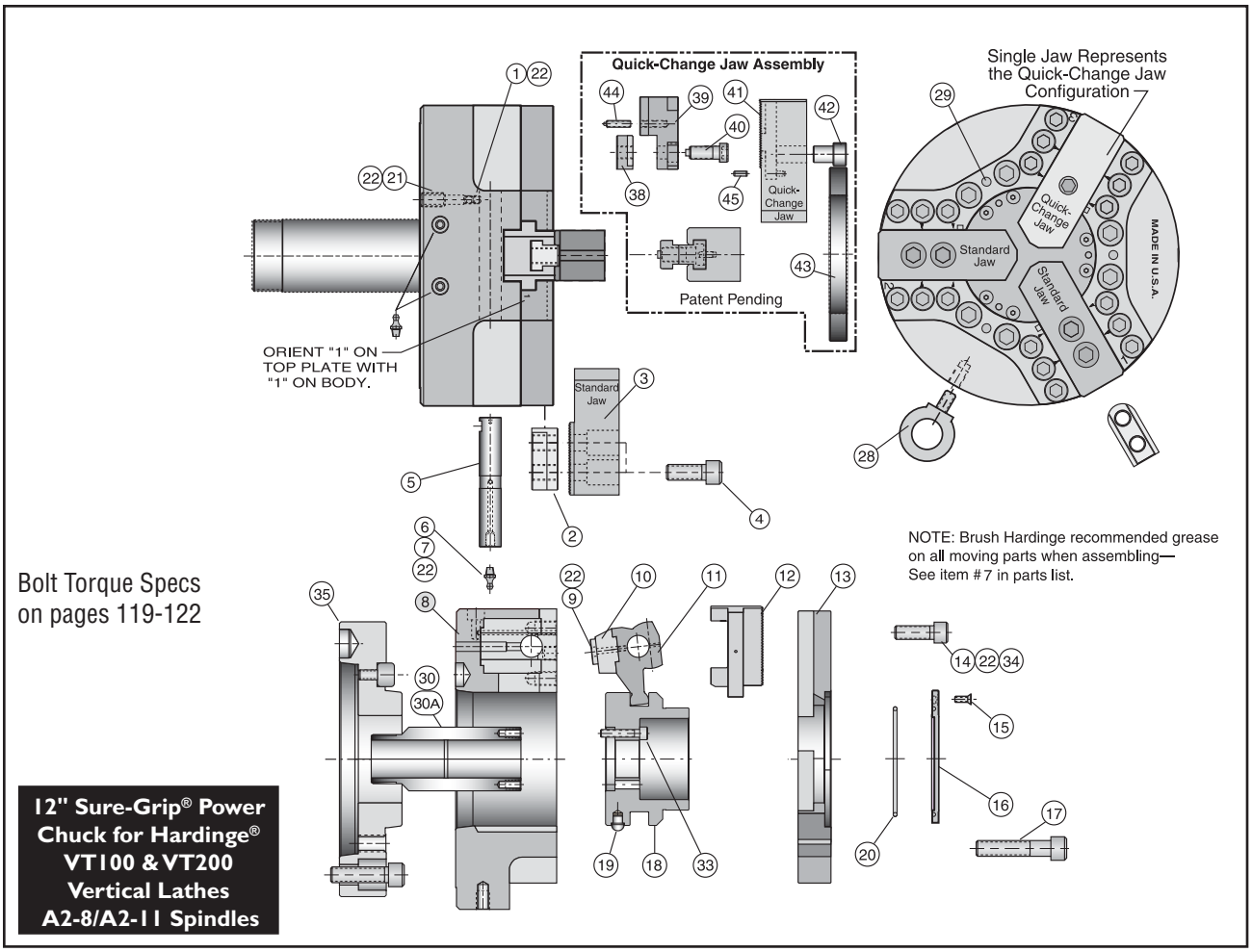
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks—1.5mm x 60° Metric Serrations

Model No.	Part Number	Description
12MSHF	SC 2000426	Standard Height Soft Flat Top Jaw
12MMHF	SC 2000427	Medium Height Soft Flat Top Jaw
12MSHP	SC 2000416	Standard Height Soft Pointed Top Jaw
12MMHP	SC 2000423	Medium Height Soft Pointed Top Jaw
12MH1	SC 2000421	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description**
12MQP1	SC 2000761	Standard Height Soft Pointed Top Jaw

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)



Periodic Safety Inspection – Every 6 Months or After an Accident or Collision.

(This inspection should be done after the chuck has been removed from the lathe spindle.)

NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn. Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove twelve socket-head cap screws (14) from the top plate.
- Remove the top plate (13). The chip shield (16) does not have to be removed.
- Remove the three master jaws (12).
- Remove three set screws (21) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (11).
- Remove Chuck Draw Bar (18). Do not disassemble item (19) Key.
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (16) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(14)(17)(21)(34).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (12) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Parts List: 12" Chuck Assembly for Other CNC Lathe—A2-8 Spindle

Assemblies for Other brand CNC Lathes:

Model No.	Part Number	Description
CM2-312C-8	SCA 2300312 A28C	Standard Chuck – A2-8 Spindle – 1.5mm x 60° Master Jaw Serrations
CM2-312C-8Q	SC 2370312 A28C	Quick-Change Chuck – A2-8 Spindle – 1.5mm x 60° Master Jaw Serrations

Parts List:

Item	Qty	Part Number	Description
1	6	MS 0573814	Socket Set Screw-Flat [M8 x 1.25 x 8mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
2	3	SC 0000412	"T" Nut - for Metric Serrated Soft Jaws - Must Use Hardinge "T" Nuts
3	3	SC 2000416	Soft Top Jaw
4	6	MS 0104622	Socket Head Cap Screw [M16 x 2 x 40mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
5	3	SC 0000410	Pin
6	9	DV 0010327	Fitting, Alemite No. 1610-B
7	0	CE 0000002	Grease—Chevron Ultra-Duty EP NLGI 2 (Dow Corning BR-2 Plus or Kluber ALTEMP Q NB 50 avail.)
8	1	replacement N/A	12" Chuck Body (Send entire chuck assembly to Hardinge if chuck body is damaged)
9	6	MS 0103520	M5 x .8 x 30 SHCS
10	3	SC 0000407	Counterweight
11	3	SC 0000408	Lever
12	3	SCA 0000414	Master Jaw with Metric Serrations (1.5 mm x 60°)
13	1	SCA 0000406	Top Plate
14	12	MS 0104422	Socket Head Cap Screw [M14 x 2 x 40mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
15	6	MS 0303615	Button Head Screw [M6 x 1 x 10mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
16	1	SC 0000405	Chip Shield
17	6	MS 0104636	Socket Head Cap Screw [M16 x 2 x 140mm]
18	1	SC 0000418	Chuck Draw Bar (A2-8 Spindle)
19	1	SCA 0000153	Key
21	3	MS 0554219 SS	M12 x 1.75 mm Set Screw
22	0	NC 0010884	Loctite #242
24	1	B 0009500 0087	Safety and Technical Manual
28	1	CE 0000012	Eye Bolt, Reid MEB-12
29	3	CE 3751750	3/8" x 1.75 Pull Dowel
30	1	SC 0000420	Nut, 12" Drawhead
32	1	SC 0000419	Drawbar Link
33	1	CE 2520531	Stubby Plunger, 1/4-20 x 1
37	6	MS 0104420	Socket Head Cap Screw [M14 x 2 x 30mm] (DIN912 12.9, ISO 4762, or ANS B 18.3.1M specs)
Kit	**1**	**SC 2000761QC**	**Quick-Change Kit** includes all parts listed below:
39	3	SC 0000762	T-Nut
40	3	SC 0000760	I-Beam
41	3	SC 0000763	Screw
42	3	SC 0000761	Top Jaw
43	3	SC 0000765	Boring Pin
44	1	SC 0000764	Boring Ring
45	3	CE 0000004AN	Spring Plugger
46	3	TL 0006615	Dowel Pin

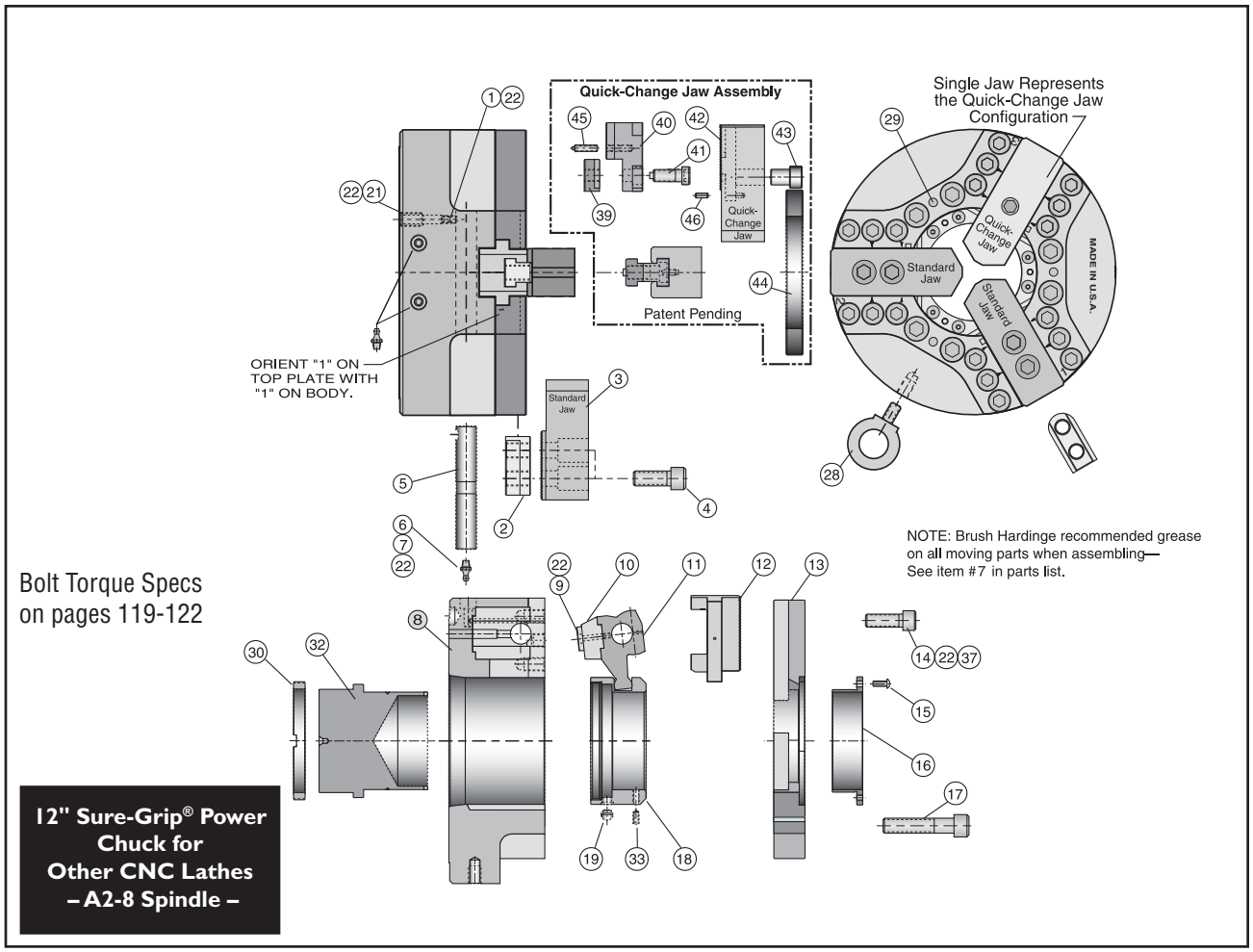
Quick-Change Parts

Top Jaws for Hardinge Sure-Grip Chucks – 1.5mm x 60° Metric Serrations

Model No.	Part Number	Description
12MSHF	SC 2000426	Standard Height Soft Flat Top Jaw
12MMHF	SC 2000427	Medium Height Soft Flat Top Jaw
12MSHP	SC 2000416	Standard Height Soft Pointed Top Jaw
12MMHP	SC 2000423	Medium Height Soft Pointed Top Jaw
12MH1	SC 2000421	Hard Single Step Top Jaw
Model No.	**Part Number**	**Description**
12MQP1	SC 2000761	Standard Height Soft Pointed Top Jaw

WARNING: You must use Hardinge T-nuts. (Ignoring this warning may result in machine and/or personal injury)

NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.



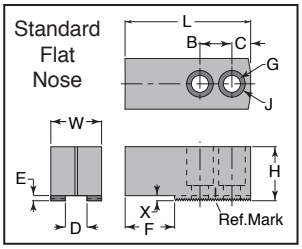
Periodic Safety Inspection – Every 6 Months or After an Accident or Collision.

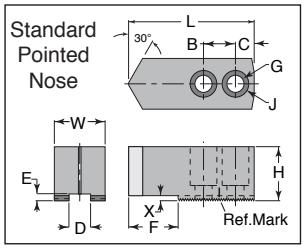
(This inspection should be done after the chuck has been removed from the lathe spindle.)

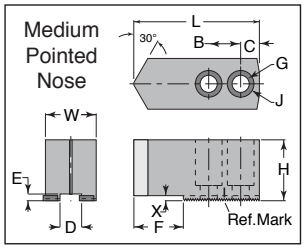
NOTE: The parts for each jaw location (pin, lever, master jaw, t-nuts and top jaw) should be kept together for reassembly. If assembled into a different location the chuck will not be balanced and the strokes may not be within specifications.

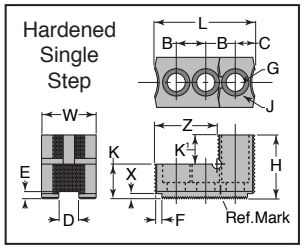
- Loosen the bolts (4) and raise and slide the standard jaws with the T-nuts (2) from the slot in the master jaw.
  Quick-Change Jaw - Loosen bolts (33) one full turn; Remove Quick-Change Top Jaw (34); Again loosen bolt (33) 1/2 turn. Slide I-beam assembly off (31) (32) (35) master jaw.
- Remove twelve socket-head cap screws (14) from the top plate.
- Remove the top plate (13). The chip shield (16) does not have to be removed.
- Remove the three master jaws (12).
- Remove three set screws (21) after recording the depth and location. Balance screws may be different lengths and depths and must be replaced in the same holes and to the same depth.
- Remove six set screws (1) which lock in pivot pin (5). Do not remove items (6).
- Remove Pivot Pin (5).
- Remove Levers (11).
- Remove Chuck Draw Bar (18). Do not disassemble item (19).
  Check the draw bar, draw bar adapter and all chuck parts, including mounting bolts (4) (13) (16) (28) for hairline cracks, fissures, and excessive wear. Replace all damaged parts.
  WARNING: If the chuck body is damaged, the entire chuck assembly must be sent back to Hardinge for rebuilding.
- Clean all parts.
- Lubricate all moving parts with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Reassemble parts in the reverse order they were disassembled. Use Loctite #242 (22) on bolts (1)(14)(17)(37).
- Use pressure gun to grease pivot pin (5) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease.
- Use pressure gun to lightly grease master jaws (12) with Chevron Ultra-Duty EP NLGI 2, Dow Corning BR-2-Plus, or Kluber ALTEMP Q NB 50 grease. Use the six grease fittings on OD of the chuck body. Move jaws through their full stroke several times.
- After mounting chuck to machine tool, again grease the master jaws, then move the jaws through their full stroke under power. Grease the jaws again and cycle under power. This process makes certain all surfaces are lubricated properly.

Top Jaws for Hardinge® Sure-Grip® Power Chucks









SOFT - STANDARD HEIGHT FLAT NOSE

Chuck Model No.	Chuck Size In.	Chuck Size mm	Jaw Model #	Jaw Part No.	L Jaw Length	W Jaw Width	H Jaw Height	A Serrations	B Bolt Space	C	D Keyway	E Keyway Depth	X	F	G	J	Bolt Thread
HM304	4"	100	4MSHF	SC-2000225	1.95"	1.00"	1.12"	1.5mm x 60°	.551"	.39"	.394"	.200"	.140"	.68"	.343"	.531"	M8x1.25
HM305 & CM2-305B-5	5"	125	5MSHF	SC-2000070	2.40"	1.00"	1.12"	1.5mm x 60°	.709"	.44"	.395"	.200"	.140"	1.00"	.343"	.562"	M8x1.25
HM306, HM306-6 HM306-6L, HM306-5E CM2-306C-5	6"	150	6MSHF	SC-2000019	2.75"	1.25"	1.25"	1.5mm x 60°	.787"	.46"	.473"	.200"	.140"	.88"	.422"	.656"	M10x1.5
HM308, HM308-5 HMQ-308, HM308-6E CM2-308B-6	8"	200	8MSHF	SC-2000119	3.36"	1.50"	1.50"	1.5mm x 60°	.984"	.51"	.551"	.200"	.170"	.81"	.500"	.750"	M12x1.75
HM310-6, HM310-8 HMQ310-6, HVM310-8 HVM310-11, CM2-310B-8 CM2-310C-8	10"	250	10MSHF	SC-2000169	4.00"	1.75"	1.75"	1.5mm x 60°	1.187"	.64"	.631"	.200"	.218"	1.44"	.500"	.75"	M12x1.75
HM312C-8 CM2312C-8, HVM312C-8 HVM312C-11	12"	300	12MSHF	SC-2000426	4.50"	2.00"	1.972"	1.5mm x 60°	1.181"	.90"	.828"	.200"	.218"	1.60"	.672"	1.00"	M16x2

SOFT - MEDIUM HEIGHT FLAT NOSE

Chuck Model No.	Chuck Size In.	Chuck Size mm	Jaw Model #	Jaw Part No.	L Jaw Length	W Jaw Width	H Jaw Height	A Serrations	B Bolt Space	C	D Keyway	E Keyway Depth	X	F	G	J	Bolt Thread
HM304	4"	100	4MMHF	SC-2000226	1.95"	1.00"	1.49"	1.5mm x 60°	.551"	.39"	.394"	.200"	.140"	.68"	.343"	.531"	M8x1.25
HM305, CM2-305B-5	5"	125	5MMHF	SC-2000071	2.48"	1.00"	1.49"	1.5mm x 60°	.709"	.44"	.395"	.200"	.140"	1.00"	.343"	.562"	M8x1.25
HM306, HM306-6 HM-306-6L, HM306-5E CM2-306C-5	6"	150	6MMHF	SC-2000020	2.75"	1.25"	1.75"	1.5mm x 60°	.787"	.46"	.473"	.200"	.140"	.88"	.422"	.656"	M10x1.5
HM308, HM308-5 HMQ-308, HM308-6E CM2-308B-6	8"	200	8MMHF	SC-2000120	3.36"	1.50"	2.00"	1.5mm x 60°	.984"	.51"	.551"	.200"	.170"	.81"	.500"	.750"	M12x1.75
HM310-6, HM310-8 HMQ310-6, HVM310-8 HVM310-11, CM2-310B-8 CM2-310C-8	10"	250	10MMHF	SC-2000170	4.00"	1.75"	2.25"	1.5mm x 60°	1.187"	.64"	.631"	.200"	.218"	1.44"	.500"	.75"	M12x1.75
HM312C-8 CM2312C-8, HVM312C-8 HVM312C-11	12"	300	12MMHF	SC-2000427	4.50"	2.00"	2.750"	1.5mm x 60°	1.181"	.90"	.828"	.200"	.218"	1.60"	.672"	1.00"	M16x2

SOFT - STANDARD HEIGHT POINTED NOSE

Chuck Model No.	Chuck Size In.	Chuck Size mm	Jaw Model #	Jaw Part No.	L Jaw Length	W Jaw Width	H Jaw Height	A Serrations	B Bolt Space	C	D Keyway	E Keyway Depth	X	F	G	J	Bolt Thread
HM304	4"	100	4MSHP	SC-2000222	2.22"	1.00"	1.12"	1.5mm x 60°	.551"	.39"	.394"	.200"	.140"	.95"	.343"	.531"	M8x1.25
HM305, CM2-305B-5	5"	125	5MSHP	SC-2000066	2.77"	1.00"	1.12"	1.5mm x 60°	.709"	.44"	.395"	.200"	.140"	1.00"	.343"	.562"	M8x1.25
HM306, HM306-6 HM-306-6L, HM306-5E CM2-306C-5	6"	150	6MSHP	SC-2000016	3.09"	1.25"	1.25"	1.5mm x 60°	.787"	.46"	.473"	.200"	.140"	1.22"	.422"	.656"	M10x1.5
HM308, HM308-5 HMQ-308, HM308-6E	8"	200	8MSHP	SC-2000116	3.76"	1.50"	1.50"	1.5mm x 60°	.984"	.51"	.551"	.200"	.170"	1.21"	.500"	.750"	M12x1.75
CM2-308B-6	8"	200	8MSHPL	SC-2000603	4.062"	1.50"	1.483	1.5mm x 60°	.984"	.51"	.551"	.200"	.170"	1.51"	.500"	.750"	M12x1.75
HM310-6, HM310-8 HMQ310-6, HVM310-8 HVM310-11, CM2-310B-8 CM2-310C-8	10"	250	10MSHP	SC-2000166	4.56"	1.75"	1.75"	1.5mm x 60°	1.187"	.64"	.631"	.200"	.218"	2.00"	.500"	.750"	M12x1.75
HM312C-8 CM2312C-8, HVM312C-8 HVM312C-11	12"	300	12MSHP	SC-2000416	5.043"	2.00"	1.972"	1.5mm x 60°	1.181"	.90"	.828"	.200"	.218"	2.15"	.672"	1.00"	M16x2

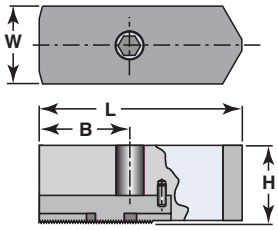
WARNING: Bolts which are longer than the original top jaw bolts will bottom out before the top jaw is firmly secured to the master jaw. This unstable situation will cause the workpiece to come loose resulting in possible damage to the machine and/or personal injury.
NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks.

SOFT - MEDIUM HEIGHT POINTED NOSE

Chuck Model No.	Chuck Size In.	Chuck Size mm	Jaw Model #	Jaw Part No.	L Jaw Length	W Jaw Width	H Jaw Height	A Serrations	B Bolt Space	C	D Keyway	E Keyway Depth	X	F	G	J	Bolt Thread
HM304	4"	100	4MMHP	SC-2000227	2.22"	1.00"	1.50"	1.5mm x 60°	.551"	.39"	.394"	.200"	.140"	.95"	.343"	.531"	M8x1.25
HM305, CM2-305B-5	5"	125	5MMHP	SC-2000073	2.77"	1.00"	1.50"	1.5mm x 60°	.709"	.44"	.395"	.200"	.140"	1.00"	.343"	.562"	M8x1.25
HM306 & HM306-6 HM-306-6L, HM306-5E CM2-306C-5	6"	150	6MMHP	SC-2000023	3.09"	1.25"	1.75"	1.5mm x 60°	.787"	.46"	.473"	.200"	.140"	1.22"	.422"	.656"	M10x1.5
HM308, HM308-5 HMQ-308, HM308-6E CM2-308B-6	8"	200	8MMHP	SC-2000123	3.76"	1.5"	2.00"	1.5mm x 60°	.984"	.51"	.551"	.200"	.170"	1.21"	.500"	.750"	M12x1.75
HM310-6, HM310-8 HMQ310-6, HVM310-8 HVM310-11, CM2-310B-8	10"	250	10MSHP	SC-2000173	4.56"	1.75"	2.25"	1.5mm x 60°	1.187"	.64"	.631"	.200"	.218"	2.00"	.500"	.750"	M12x1.75
CM2-310C-8	10"	250	M10MHP	SC-2000599	4.56"	1.75"	2.629"	1.5mm x 60°	1.187"	.64"	.631"	.200"	.218"	2.00"	.500"	.750"	M12x1.75
HM312C-8 CM2312C-8, HVM312C-8 HVM312C-11	12"	300	12MMHP	SC-2000423	5.043"	2.00"	1.972"	1.5mm x 60°	1.181"	.90"	.828"	.200"	.218"	2.15"	.672"	1.00"	M16x2

HARDENED – SINGLE STEP

Chuck Model No.	Chuck Size In.	Chuck Size mm	Jaw Model No.	Jaw Part No.	L Jaw Length	W Jaw Width	H Jaw Height	A Serrations	B Bolt Space	C	D Keyway	E Keyway Depth	F	G	J	K	K'	X	Z	Bolt Thread
HM304	4"	100	4MH1	SC-2000224	2.06"	1.00"	1.12"	1.5mm x 60°	.551"	.42"	.394"	.200"	.18"	.343"	.562"	.750"	.375"	.22"	1.25"	M8x1.25
HM305, CM2-305B-5	5"	125	5MH1	SC-2000072	2.42"	1.00"	1.22"	1.5mm X 60°	.708"	.42"	.395"	.200"	.18"	.343"	.531"	.845"	.373"	.22"	1.63"	M8x1.25
HM306 & HM306-6 HM-306-6L, HM306-5E CM2-306C-5	6"	150	6MH1	SC-2000021	2.83"	1.25"	1.42"	1.5mm X 60°	.787"	.52"	.473"	.200"	.18"	.422"	.656"	.927"	.500"	.30"	1.82"	M10x1.5
HM308, HM308-5 HMQ-308, HM308-6E CM2-308B-6	8"	200	8MH1	SC-2000121	2.64"	1.50"	1.75"	1.5mm x 60°	.810"	.63"	.551"	.200"	.20"	.500"	.750"	.950"	.800"	.30"	2.10"	M12x1.75
HM310-6, HM310-8 HMQ310-6, HVM310-8 HVM310-11, CM2-310B-8 CM2-310C-8	10"	250	10MH1	SC-2000171	4.32"	1.75"	2.02"	1.5mm x 60°	1.187"	1.03"	.631"	.200"	.48"	.500"	.750"	1.20"	.812"	.25"	3.26"	M12x1.75
HM312C-8 CM2 312C-8, HVM312C-8 HVM312C-11	12"	300	12MH1	SC-2000421	4.927"	2.00"	2.180"	1.5mm x 60°	1.181"	1.59"	.828"	.200"	.50"	.672"	1.00"	1.378"	.812"	.297"	3.56"	M16x2



Quick-Change Jaws for Hardinge Sure-Grip Power Chucks

SOFT - STANDARD HEIGHT POINTED NOSE

Quick-Change Chuck Model No.	Chuck Size In.	Chuck Size mm	Jaw Model #	Jaw Part No.	L Jaw Length	W Jaw Width	H Jaw Height	Serrations	B Bolt To End	Thread
HM306Q	6"	150	6MQP1	SC-2000741	3.03"	1.25"	1.46"	1.5mm x 60°	1.22"	M10 x 1.5
CM2-306C-5Q, CM2-306E-5Q	6"	150	6MQP2	SC-2000747	3.15"	1.25"	1.46"	1.5mm x 60°	1.22"	M10 x 1.5
HM306-6Q, HM306-6LQ	6"	150	6MQP3	SC-2000746	3.05"	1.25"	1.46"	1.5mm x 60°	1.22"	M10 x 1.5
HM308Q, CM2-308B-6Q HM308-5Q, HMQ308-Q	8"	200	8MQP1	SC-2000721	3.76"	1.50"	1.63"	1.5mm x 60°	1.68"	M10 x 1.5
CM2-308C-6Q	8"	200	8MQP2	SC-2000727	4.189"	1.50"	1.63"	1.5mm x 60°	1.68"	M10 x 1.5
HMQ310-6Q, HM310-8Q CM2-310B-8Q HVM310-8Q, HVM310-11Q	10"	250	10MQP1	SC-2000701	4.58"	1.75"	1.72"	1.5mm x 60°	2.05"	M12 x 1.75
CM2-310C-8Q	10"	250	10MQP2	SC-2000706	4.875"	1.75"	1.72"	1.5mm x 60°	2.05"	M12 x 1.75
HM312C-8Q CM2-312C-8Q, HVM312C-8Q HVM312C-11Q	12"	300	12MQP1	SC-2000761	5.42"	2.00"	1.96"	1.5mm x 60°	2.55"	M16 x 2

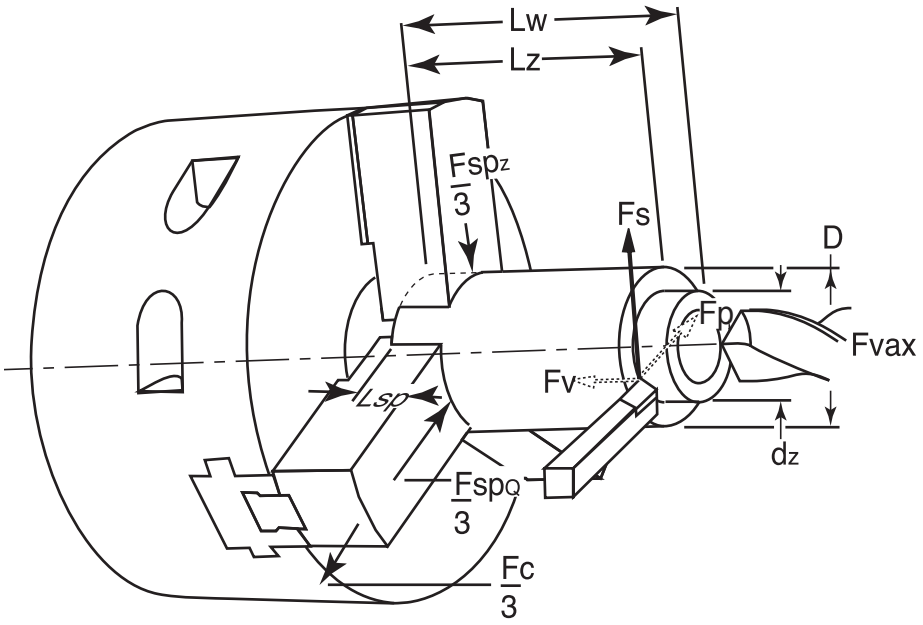
NOTE: Only jaws manufactured by Hardinge Inc. or jaws approved by Hardinge are to be used on Sure-Grip Power Chucks. Most Hardinge standard chuck models can be equipped with a Quick-Change Jaw Retrofit Kit. See pages 13-17. These jaw part numbers correspond the the numbers shown in the chart above, with an additional "QC" at the end of the number.

NOTES:

Chapter 2

Calculating Gripping Force for Hardinge® Sure-Grip® Thru-Hole Power Chucks

Hardinge® Sure-Grip® Power Chuck Gripping Force Illustration and Parameter Definitions



Fs	=	Cutting force on turning style cutting tools
Fp	=	Radial force – passive
Fv	=	Feed force on turning style cutting tools
Fsp_z	=	Required total gripping force (without considering the effects of angular speed)
Fc	=	Centrifugal force of the jaws
Fsp_Q	=	Total initial gripping force with stationary chuck
Lz	=	Distance between machining and clamping points
d_{SP}	=	Chuck diameter
d_z	=	Machining diameter
Lsp	=	Chucking length

The information contained in this chapter is presented to help you determine the required gripping force for your Sure-Grip Power Chuck and the operating forces of the actuating cylinder.

NOTE: All charts in this manual are based on calculated values for the forces, not actual (dynamic) values of the forces.

The following parameters must be calculated:

1. Gripping Force "Fsp_Z" required for the machining operation. (No allowance for the effects of angular velocity)
2. Initial Gripping Force "Fsp_Q" required with a stationary spindle with consideration taken for the centrifugal forces of the chuck jaws.
3. Actuating Cylinder Force (Draw Bar Force) required to provide the initial gripping force "Fsp_Q".

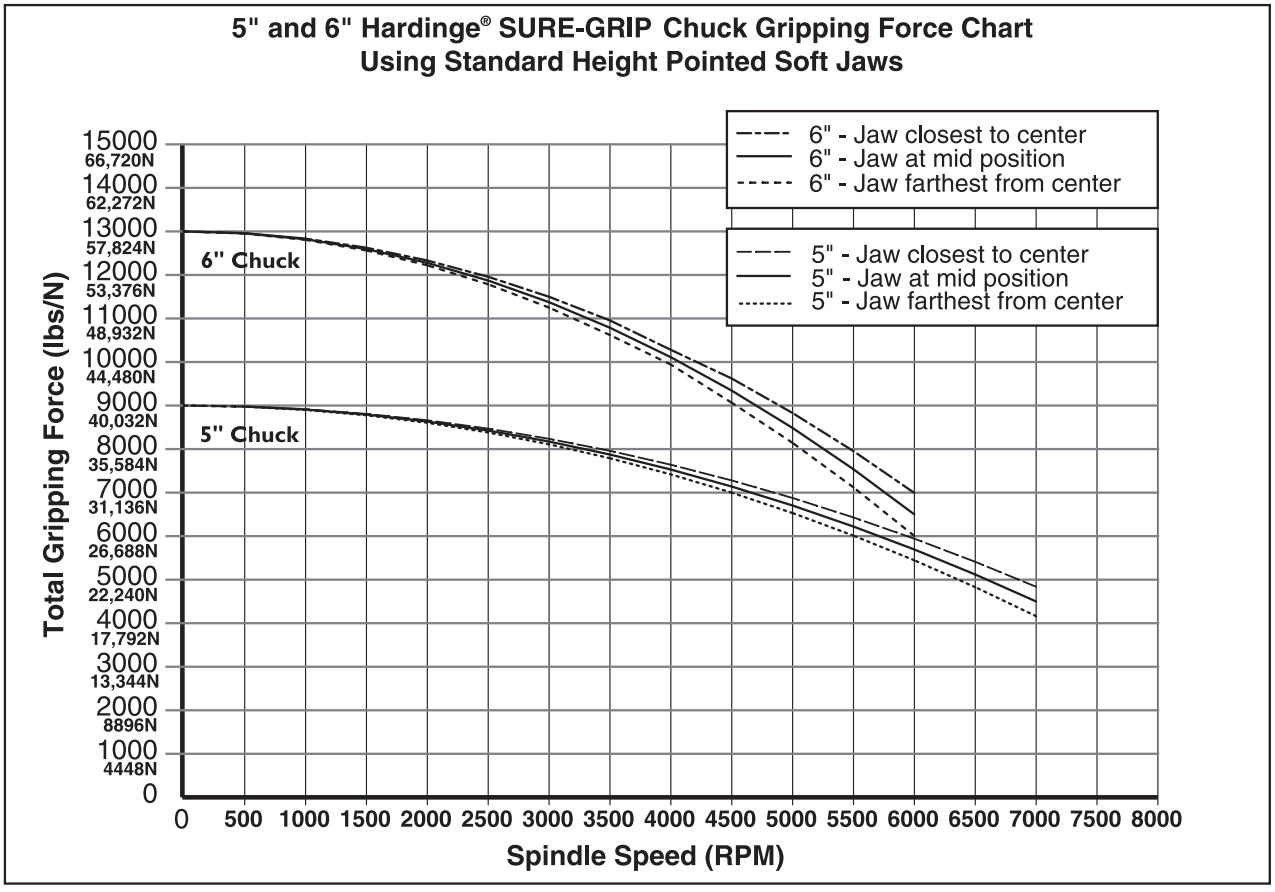
Today's machining techniques require high spindle speeds, and many times, fast cutting feed rates. Because of these changes it is necessary to consider the safe operation of chucks at these speeds and feeds. Therefore you must be able to determine the necessary gripping forces required and how they change with the increase or decrease of the spindle speed (RPM) and the cutting forces applied to the workpiece.

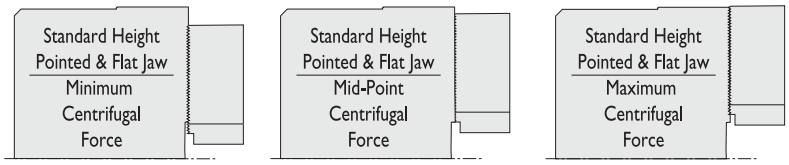
Gripping Force Loss Due to Jaw Location

The machining operations generate forces and movements which must be properly absorbed and transmitted by the power chuck. Gripping force is the main purpose of the chuck. This force is the arithmetic sum of the radial forces exerted on the workpiece by the chuck jaws.

There are a great many variables which act on the clamping area of the jaws during a machining operation. To combine all these variables into one chart is not possible. The following formulas, tables and graphs in this chapter (and the methods for calculating them) are acceptable for the normal run-of-the-mill applications on well maintained and properly lubricated three-jaw chucks. The calculations are acceptable for normal as well as special applications. In the case of large and heavy top jaws, the centrifugal forces must be accurately calculated. The centrifugal force curves shown on pages 112-114 are for chucks with standard height pointed soft blank top jaws used in the mid-position of the master jaw. This blank top jaw will be heavier than one that has already been machined to accept a workpiece, therefore the results will be on the safe side.

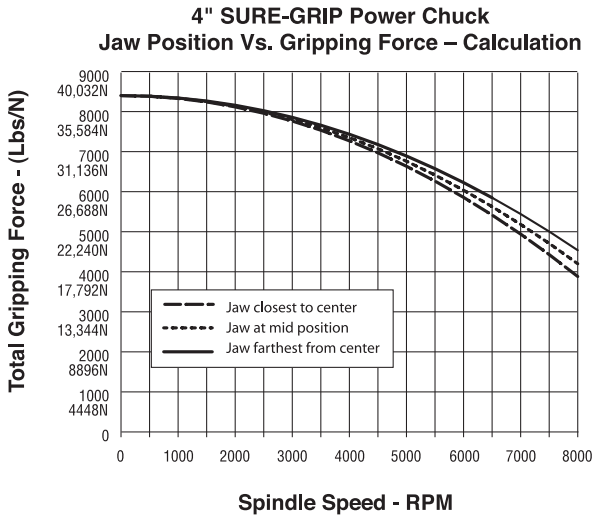
Gripping Force/RPM Diagram for 5" and 6" Sure-Grip® Chucks
Upper Curve = Minimum Centrifugal Force of Top Jaw
Middle Curve (best position to use any top jaw) = Mid-Position Centrifugal Force of Top Jaw
Lower Curve = Maximum Centrifugal Force of Top Jaw

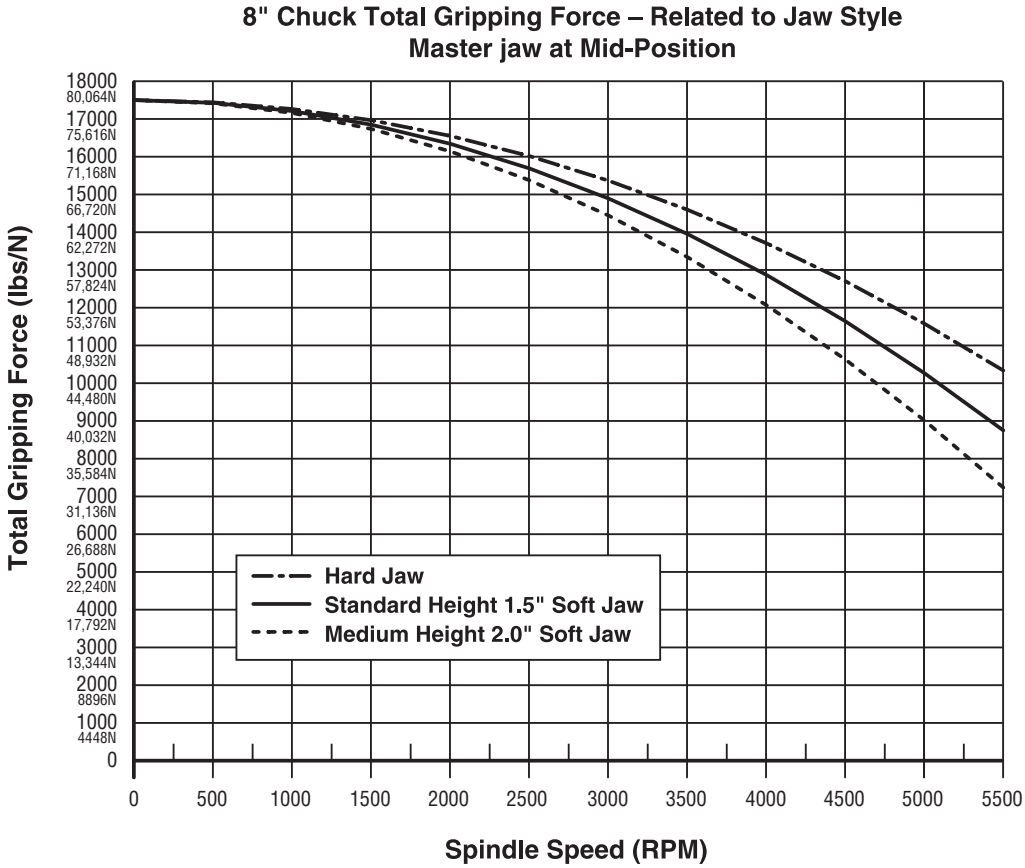


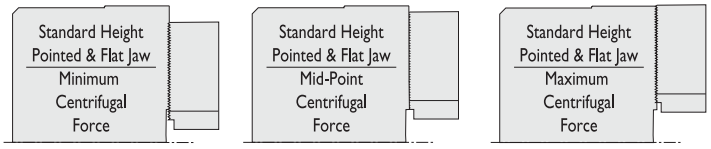


NOTE: All Charts are based on calculated draw forces.

Gripping Force Loss Due to Chuck Jaw Location

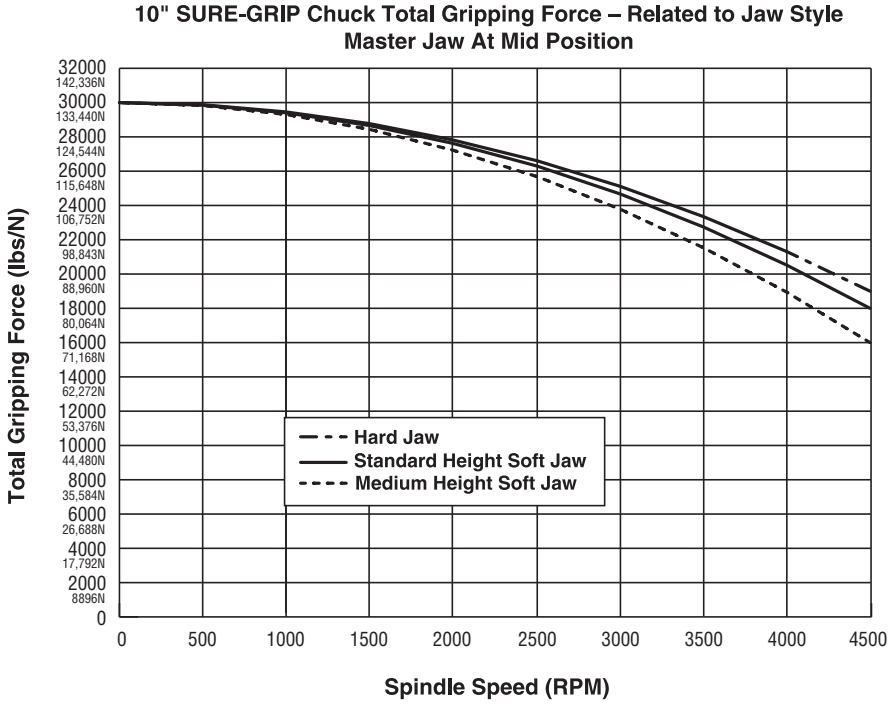


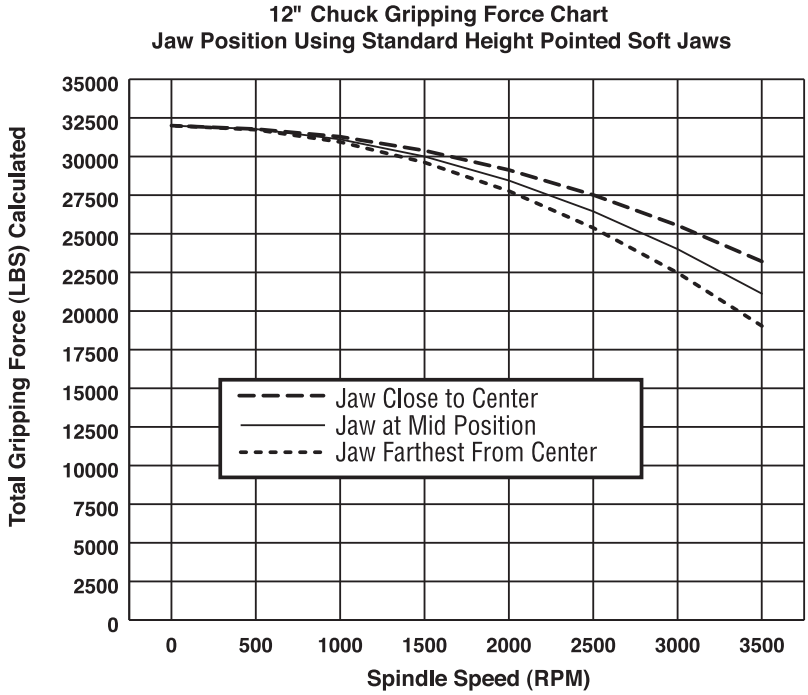


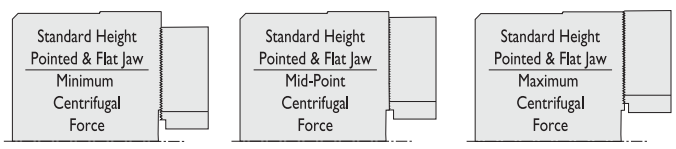


NOTE: All Charts are based on calculated draw forces.

Gripping Force Loss Due to Chuck Jaw Location



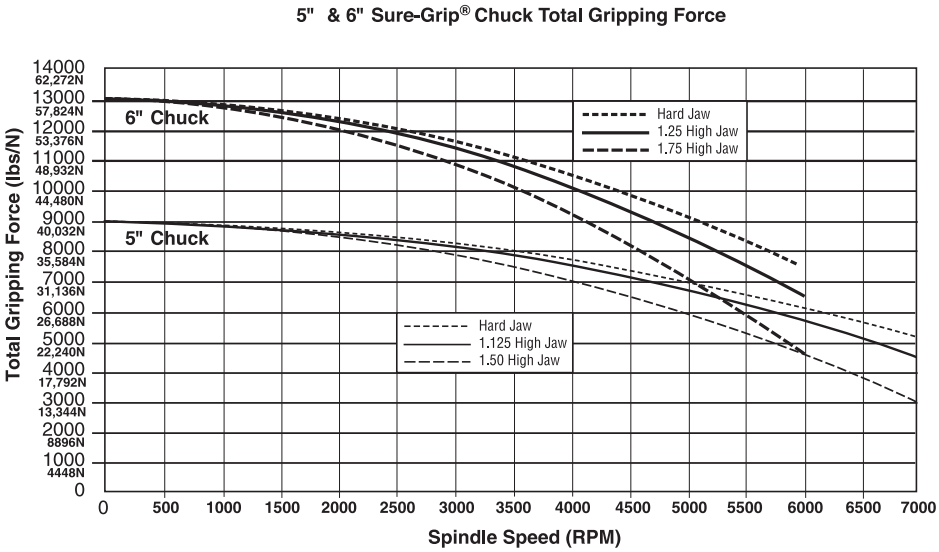




NOTE: All Charts are based on calculated draw forces.

Jaw Height and Mass Gripping Force

The chart on the right illustrates the gripping force loss due to the height and mass of the jaws. The hard jaw has the least amount of gripping force loss due to the smallest amount of mass. The medium height jaw shows the greatest amount of gripping force loss. Jaws higher than the medium height jaws, or more massive, will have dramatic gripping force losses and should be avoided.



NOTE: All Charts are based on calculated draw forces.

Turning

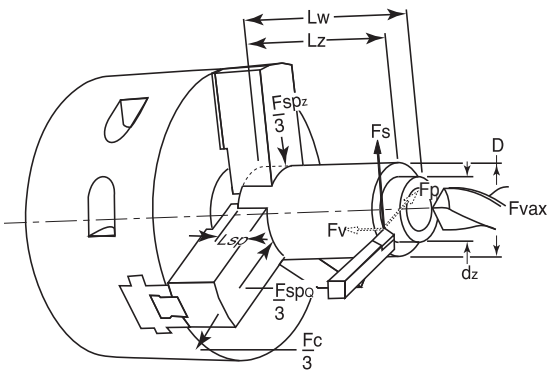
The required gripping force "**Fsp_z**" depends upon the type of operation being accomplished. The cutting force on the turning tool and its consequent reaction on the workpiece involve the following variables:

Fs = Main Cutting Force

Fv = Feed Force

Fp = Radial Force (Passive)

During the turning operations, the Feed Force "**Fv**" and the Radial Force "**Fp**" are mainly absorbed by the faces of the jaws where the workpiece seats. The main cutting force produces a moment (**$Fs \times d_z \div 2$**) which must be absorbed by the chuck and transmitted by friction at the clamping areas. The moment produced by the main cutting force during turning determines the gripping force required:



Formula #1: $$Fsp_z = \frac{Fs \times Sz}{\mu_{sp}} \times \frac{d_z}{d_{sp}}$$

Where:

Fsp_z = Required gripping force with chuck stationary

Fs = Main cutting force

d_z = $\frac{\text{Machining diameter}}{\text{Chucking diameter}}$ = **Chucking Ratio**

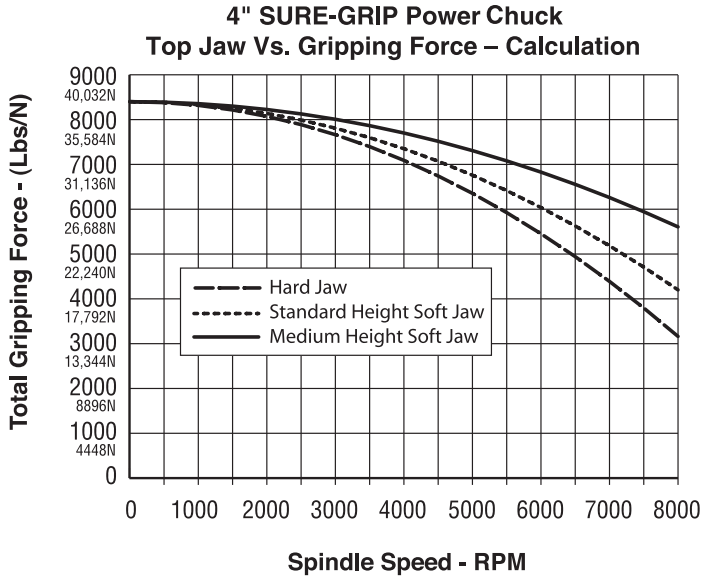
d_{sp}

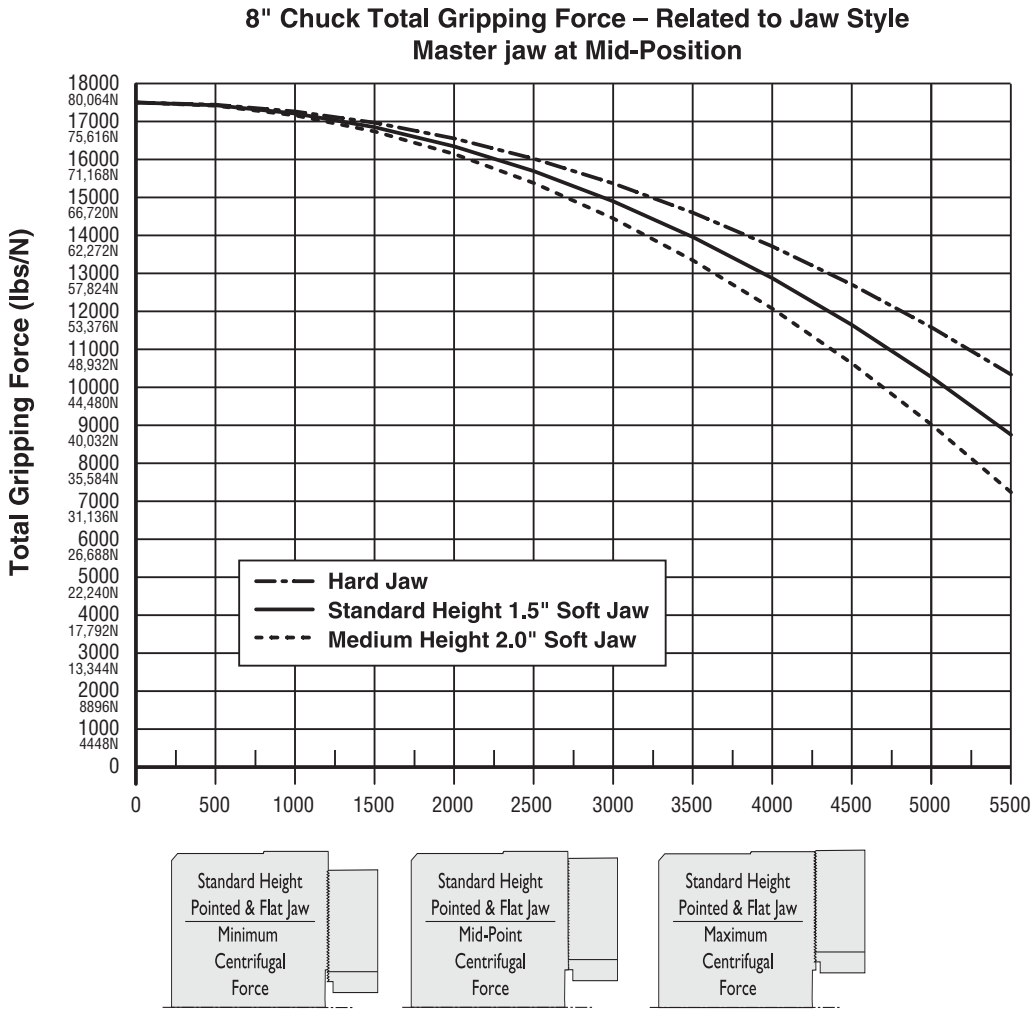
μ_{sp} = Chucking coefficient (Friction between jaw and workpiece)

Sz = Length factor

The feed force "Fv" and the radial force "Fp" are comparatively small, and for most purposes, may be ignored, simplifying our calculation. If very severe cutting conditions are present, particularly large facing cuts, increase the Length factor "Sz" by 50%.

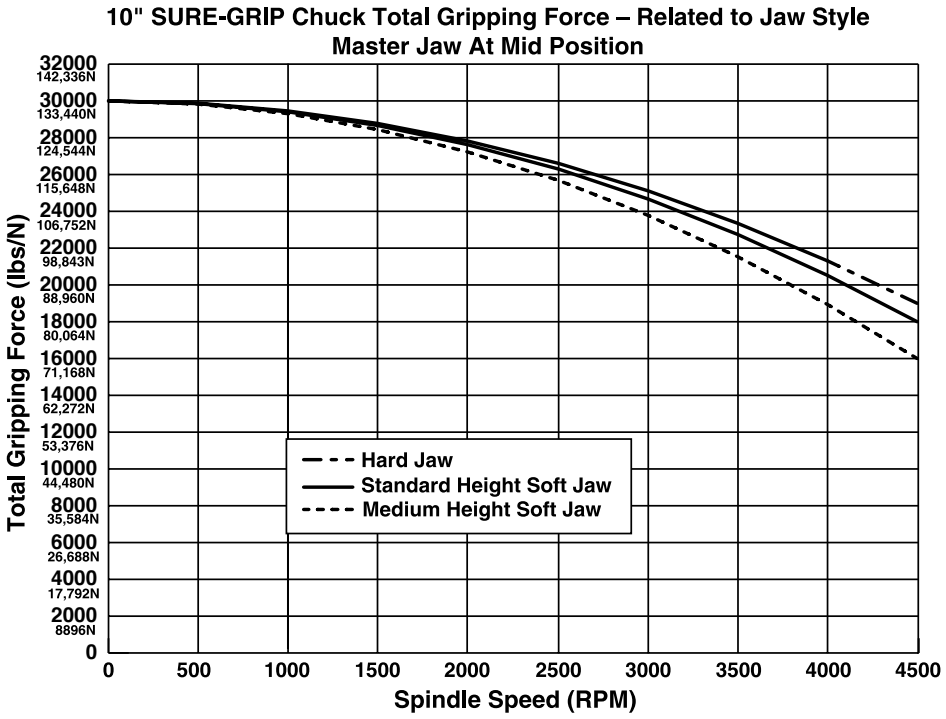
Jaw Height and Mass Gripping Force—4" and 8" Chuck

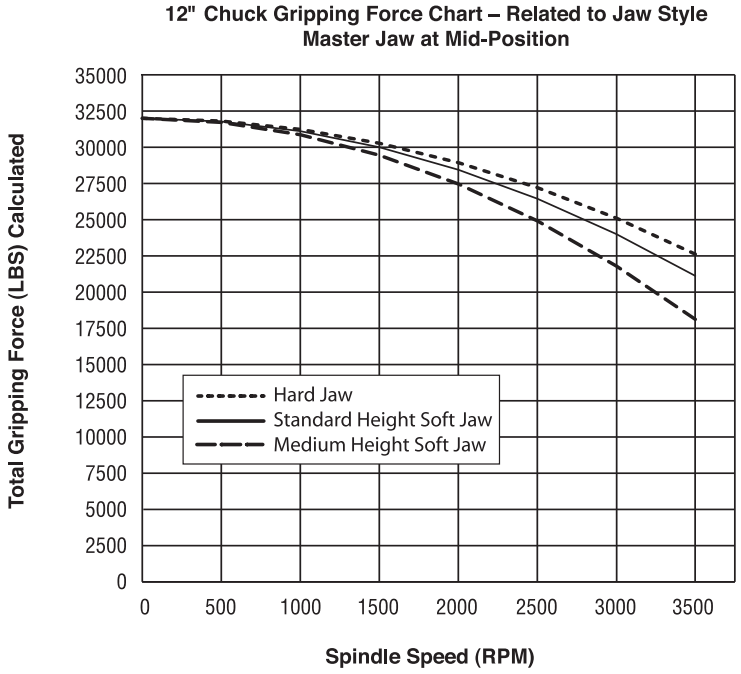


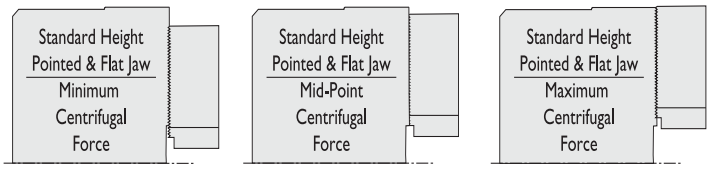


NOTE: All Charts are based on calculated draw forces.

Jaw Height and Mass Gripping Force—10" and 12" Chuck







NOTE: All Charts are based on calculated draw forces.

Main Cutting Force

The Main Cutting Force **"Fs"** is calculated from the feedrate, the depth of cut and the material being machined.

Formula #2 **Fs = (Sr x t) x Kc**

Where: **Sr =** Feedrate in mm per revolution
t = Depth of cut in mm
Kc = Specific cutting force in N/mm2 – See table on next page

The **product (Sr x t)** chip cross section can be obtained from the table below.
The **specific cutting force "Kc"** as a function of feed can be obtained from the table on the next page.

Fs = Cutting force on turning style cutting tools
Fp = Radial force – passive
Fv = Feed force on turning style cutting tools
Fsp_Z = Required total gripping force (without considering the effects of angular speed)
Fc = Centrifugal force of the jaws
Fsp_Q = Total initial gripping force with stationary chuck
Lz = Distance between machining and clamping points
d_{SP} = Chuck diameter
d_Z = Machining diameter
Lsp = Chucking length

Factors in Calculating Gripping Force

The following information tables will help you when making gripping force calculations and determine safe operating factors.

Chip Cross Section (Feed Rate x Depth of Cut) – Table 1

Feed Rate (Sr) mm/Inches Per Rev.	(t) D epth of Cut 2mm .078"	3mm .118"	4mm .157"	5mm .196"	6mm .236"	7mm .275"	8mm .315"	9mm .354"	10mm .3937"	12mm .472"
0.16mm 0.0063"	0.32mm	0.48mm	0.64mm	0.8mm	0.96mm	1.12mm	1.28mm	1.44mm	1.6mm	1.92mm
0.20mm 0.0079"	0.4mm	0.6mm	0.8mm	1.0mm	1.2mm	1.4mm	1.6mm	1.8mm	2.0mm	2.4mm
0.25mm 0.0098"	0.5mm	0.75mm	1.0mm	1.25mm	1.5mm	1.75mm	2mm	2.25mm	2.5mm	3.0mm
0.32mm 0.0126"	0.64mm	0.96mm	1.28mm	1.6mm	1.92mm	2.24mm	2.56mm	2.88mm	3.2mm	3.84mm
0.40mm 0.0157"	0.8mm	1.2mm	1.6mm	2.0mm	2.4mm	2.8mm	3.2mm	3.6mm	4.0mm	4.8mm
0.50mm 0.0197"	1.0mm	1.5mm	2.0mm	2.5mm	3.0mm	3.5mm	4.0mm	4.5mm	5.0mm	6.0mm
0.63mm 0.0248"	1.26mm	1.89mm	2.52mm	3.15mm	3.78mm	4.41mm	5.04mm	5.67mm	6.3mm	7.56mm
0.80mm 0.0315"	1.6mm	2.4mm	3.2mm	4.0mm	4.8mm	5.6mm	6.4mm	7.2mm	8.0mm	9.6mm
1.00mm 0.0394"	2.0mm	3.0mm	4.0mm	5.0mm	6.0mm	7.0mm	8.0mm	9.0mm	10.0mm	12.0mm
1.25mm 0.0492"	2.5mm	3.75mm	5.0mm	6.25mm	7.5mm	8.75mm	10.0mm	11.25mm	12.5mm	15.0mm
1.60mm 0.0630"	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm	11.2mm	12.8mm	14.4mm	16.0mm	19.2mm

Main Cutting Force

μ_{SP} Chucking Coefficient relates to the friction between the workpiece and the gripping surfaces of the top jaws. It is affected by the type of gripping surface on the jaws, the surface finish of the workpiece and the material the workpiece is made from. The chucking coefficient is shown in the following chart.

μ_{SP} Chucking Coefficent – Table 2

Surface finish of the workpiece	Top Jaw Gripping Surface			
	Turning – Boring		Drilling	
	Smooth	Serrated	Smooth	Serrated
Smooth - Finish Ground or Turned	0.07	0.13	0.13	0.24
Medium to Rough Turned Finish	0.11	0.22	0.22	0.40
Unmachined Stock	0.15	0.31	0.31	0.55

The above information relates to steel workpieces. When using other materials multiply the above number by the correction factors for the different materials:

Aluminum Alloy	0.97
Brass	0.92
Grey Cast Iron	0.80

Specific Cutting Force Kc at Feed Sr – Table 3

Material	Tensile Strength N/mm²	Brinell Hardness Numbers*	Specific Cutting Force (Nmm²) – Feed/Rev 0.1mm .0025"	0.2mm .0058"	0.4mm .0157"	0.8mm .0315"
Low carbon .15% C	up to 490	Up to 150	3600	2600	1900	1360
Low carbon .25% C	490 to 580	150 to 200	4000	2900	2100	1520
Med. carbon .40% C	580 to 680	180 to 250	4200	3000	2200	1560
High carbon .55% C	680 to 830	200 to 300	4400	3150	2300	1640
Cast Steel	290 to 490		3200	2300	1700	1240
	490 to 680		3600	2600	1900	1360
	680+		3900	2850	2050	1500
Alloy Steels	680 to 830		4700	3400	2450	1760
	830 to 970		5000	3600	2600	1850
	970 to 1370		5300	3800	2650	2000
	1390 to 1700		5700	4100	3000	2150
Stainless steel	580 to 680		5200	3750	2700	1920
Tool Steel	1460 to 1750		5700	4100	3000	2150
Cast iron		up to 200	1900	13to	1000	720
		200 to 250	2900	2080	1500	1080
Alloy		250 to 400	3200	2300	1700	1200
Tempered			2400	1750	1250	920
Copper			2100	1520	1100	800
Copper (Collectors)			1900	1360	1000	720
Brass		80 to 120	1600	1150	850	600
Cast Copper			1400	1000	700	520
Cast Bronze			3400	2450	1800	1280
Zinc Alloy Zn-Al 10-Cu2			940	700	560	430
Pure Aluminum			1050	760	550	400
Aluminum alloy 11 to 13% Si			1000	700	520	
Piston Alloy Al, Si (G Al-Si)			1400	1000	700	520
S Al-Si			11250	900	650	480
Aluminum cast	up to 290		1150	840	600	430
	290 to 420		1400	1000	700	520
Wrought Aluminum	420 to 579		1700	1220	850	640
Magnesium Alloys			580	420	300	220
Rubber, ebonite			480	350	250	180

* See ISO 4064 for Brinell Hardness Numbers

The Chucking Ratio = $\mathbf{d_Z \div d_{SP}}$ can be determined from your specific working conditions or obtained from the chart below.

Chucking Ratio ($d_Z \div d_{SP}$) – Table 4

Chucking Diameter mm/inch (Dsp)	Machining Diameter (Dz) mm/inch											
	20 .787"	40 1.574"	60 2.362"	80 3.149"	100 3.937"	150 5.905"	200 7.875"	250 9.843	300 11.811"	350 13.779	400 15.748"	500 19.985"
20mm 0.787"	1	2	3	4	-	-	-	-	-	-	-	-
40mm 1.574"	0.5	1	1.5	2.0	2.5	3.8	-	-	-	-	-	-
60mm 2.362"	0.33	0.67	1	1.3	1.7	2.5	3.3	4.2	-	-	-	-
80mm 3.149"	0.25	0.5	0.75	1.0	1.3	1.9	2.5	3.1	3.8	4.4	-	-
100mm 3.937"	0.2	0.4	0.6	0.8	1.0	1.5	2.	2.5	3.0	3.5	4.0	
150mm 5.905"	0.13	0.27	0.4	0.53	0.67	1.0	1.3	1.7	2.0	2.3	2.7	3.3
200mm 7.875"	-	0.2	0.3	0.4	0.5	0.75	1.0	1.3	1.5	1.8	2.0	2.5
250mm 9.843"	-	0.16	0.25	0.32	0.4	0.6	0.8	1.0	1.2	1.4	1.6	2.0
300mm 11.811"	-	-	0.2	0.27	0.33	0.5	0.67	0.83	1.0	1.2	1.3	1.7
350mm 13.779"	-	-	0.17	0.23	0.29	0.43	0.57	0.72	0.88	1.0	1.1	1.4
400mm 15.748"	-	-	-	0.2	0.25	0.38	0.5	0.62	0.75	0.87	1.0	1.3
500mm 19.985"	-	-	-	0.16	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0

Determining the Length Factor

The Length Factor relates to the ratio between the distance from where the cutting (turning) starts at the chucking end of the part, and the distance from the chucking end of the part to the top of the jaw. Other factors are also important in determining how well the part is gripped—they are: the cutting force determined by the feed rate and depth of cut, the specific cutting which relates to the material hardness and the feed rate and the chucking coefficient which relates to the chucking diameter and diameter being machined.

Length Factor Sz (Approximate) – Table 5

		New Chucks	Older Chucks Properly Serviced
Ratio:	Chucking length to distance between cutting and clamping points		
Lz:	Distance between start of the cut and clamping point (bottom of step)		
Lsp:	Length being chucked – from bottom of step or bottom of jaw to top of jaw.		
	Lz ÷ Lsp is ≤ 3	**≥ 2.0**	**≥ 2.4**
	Lz ÷ Lsp is ≥ 3 and ≤ 6	**≥ 4.0**	**≥ 4.8**

When to decrease the Length Factor:

- Under normal unsupported turning conditions, the length factor should not be less than 2. When the workpiece length to diameter ratio (Lw ÷ D) is greater than 3, it is good machining practice to support the workpiece with a steady rest or tailstock. If a tailstock or steady rest is used, the length factor can be reduced to 1.
- The length factor may be reduced by 30% when the workpiece is axially supported by a step in the jaws or a work-stop located against the face of the chuck. The operator must make certain that the workpiece is firmly seated against the stop when closing the chuck.

When to increase the Length Factor:

- Heavy facing cuts and heavy OD forming cuts may require the length factor to be increased by at least 50% or higher.

Warning: Out-of-balance forces due to unbalanced workpieces and/or special shaped jaws are not taken into consideration in the above length factors. ***(Unbalanced conditions may cause the workpiece to come loose, resulting in damage to the machine and/or personal injury)***

Centrifugal Forces

The gripping force of the rotating chuck is influenced by centrifugal forces. As the RPM of the spindle increases, the reaction of the chuck to centrifugal force also increases. At high spindle RPM, these forces can reduce the gripping force of the chuck substantially. Centrifugal forces must be taken into consideration when determining the initial gripping force of your chuck.

Formula #3 Initial Gripping Force "Fsp_Q" = Sz x (Fsp_Z ± Fc)

Sz = Length factor for the initial gripping force (see table above)

Fc = Total centrifugal force of the chuck jaws (master jaws and standard blank pointed soft jaws) obtained from the "Centrifugal Force of Jaws corresponding to Angular Speed" graph on the following pages. (The + sign relates to external gripping, - sign to internal gripping)

Fsp_z = Required total gripping force (without considering the effects of angular speed)

NOTE: Separate centrifugal calculations must be made when special heavy top jaws are used.

Draw Bar/Tube Force

The draw bar/tube force has a direct relationship to the gripping force of the chuck being used. Each different size, style (lever/wedge/compensated) and manufacturer will have different gripping force using the same draw bar/tube force. These differences are related to the chuck's lever ratio, mechanical efficiency, mass and flexibility of the workpiece. The values for draw bar force can be obtained from the graphs shown on the next page. The working pressure required on the Hardinge® operating cylinder is shown after those graphs.

Turning Example Calculation:

Given:

Material.....Low Alloy Steel
Workpiece diameter.....**d_{SP}** = 75 mm (2.953")
Diameter to be machined.....**d_Z** = 50 mm (1.968")
Feedrate.....**Sr** = 0.20 mm (.0079")/ Rev
Depth of cut.....**t** = 2 mm (.078")
Distance between start of cut and clamping points.....**Lz** = 50 mm (1.968")
Speed.....**N** = 2000 RPM
Chucking length.....**Lsp** = 20 mm (.790")
Actuating cylinder.....Hardinge (QUEST® 6/42)

Chuck Specifications:

Hardinge Sure-Grip® 6" chuck
- – 3 jaw
- – External gripping
- – Standard height pointed soft jaws
- – Located against stop on chuck face

FIND:

1. Required gripping force.....**"Fsp_z"** = Total gripping force required without the effect of angular speed
2. Initial gripping force.....**"Fsp_Q"** = Total initial gripping force with stationary chuck
3. Draw bar pull force
4. Pressure required at the cylinder

SOLUTION: All formulas are calculated with metric values

1. Main Cutting Force formula:

Fs = (Sr x t) x Kc (Sr x t from table 1) (Kc from table 2)

Known: Sr = 0.20 mm feed rate
t = 2 mm depth of cut
Kc = 3400N/mm² (table 2)

Fs = 0.2 x 2 x 3400
Fs = 0.4 x 3400

Fs = 1360N (306 lbs)

2. Required Gripping Force: (formula 1)

$$Fsp_z = \frac{Fs \times Sz}{\mu_{sp}} \times \frac{d_z}{d_{sp}}$$

Known: Fs = 1360N (from above formula)
Sz = 2 (length factor from table 5 [Lz = 50mm, Lsp = 20mm])
μ_{sp} = 0.15 (chucking coefficient table 2)
$d_Z \div d_{SP}$ = 0.6666 (chucking ratio from table 4 [d_Z = 50 mm, d_{SP} = 75 mm])

Fsp_z = ([1360 x 2] ÷ .15) x 0.6666
Fsp_z = (2720 ÷ .15) x 0.6666
Fsp_z = (18133.3) x 0.6666

Fsp_z = 12,077N (2717 lbs)

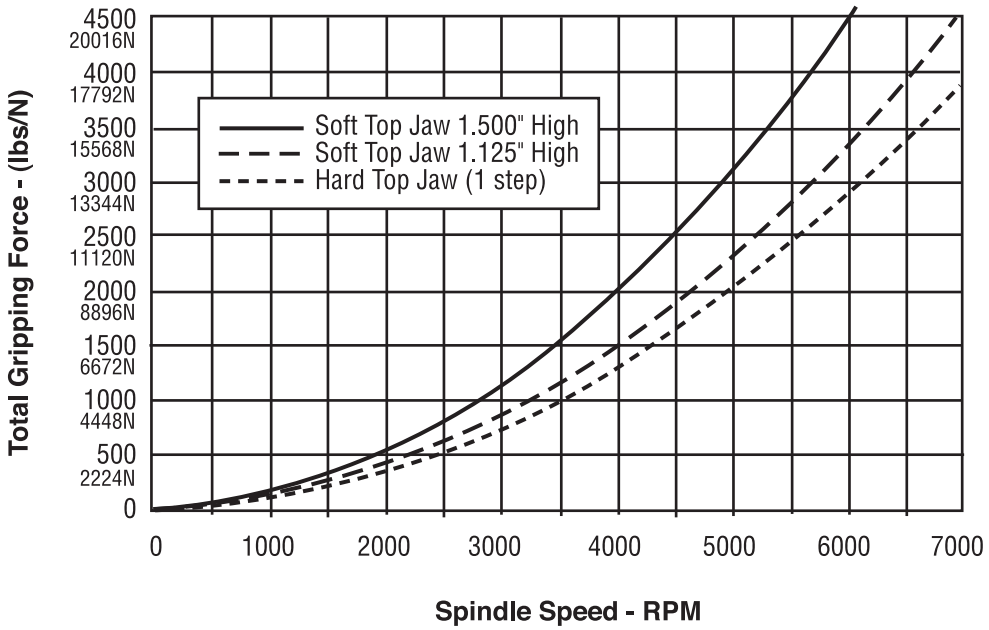
3. Find Centrifugal Force **"Fc"** of the top jaws. Use the graph on the next page for "Centrifugal Force of Jaws Corresponding to Spindle RPM (2,000 RPM) for the 6" Sure-Grip® Chuck.

Fc = 3,111N (700 lbs)

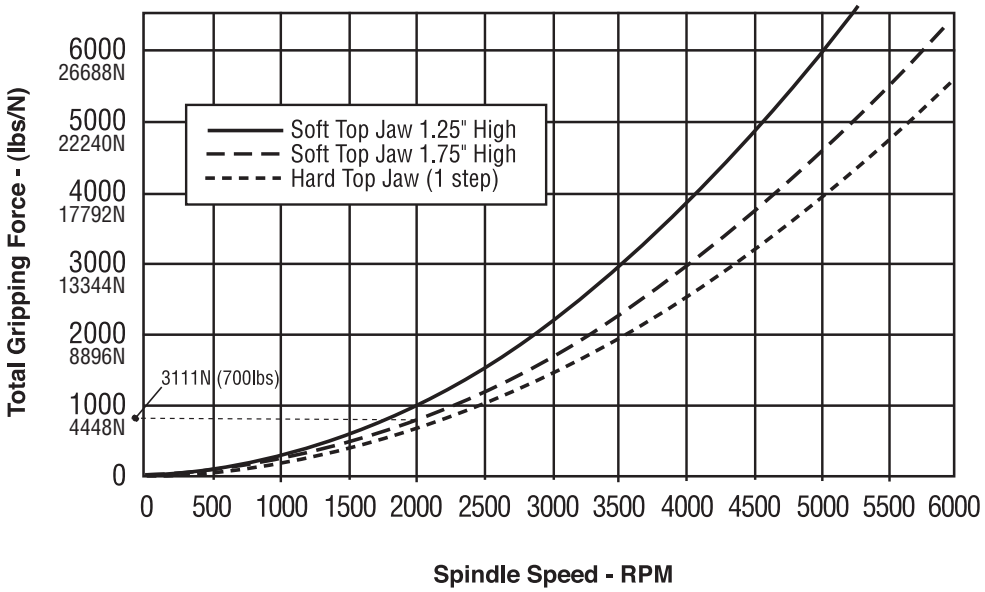
(Calculation continued after graphs)

Centrifugal Force of Jaws Corresponding to Spindle Speed – 5" & 6" Sure-Grip® Chucks

5" Chuck – Total Gripping Force Loss

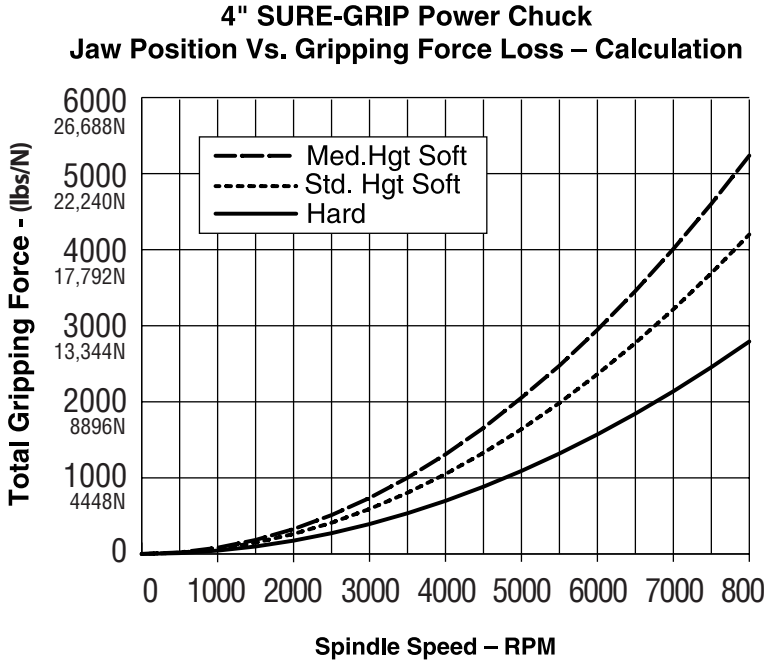


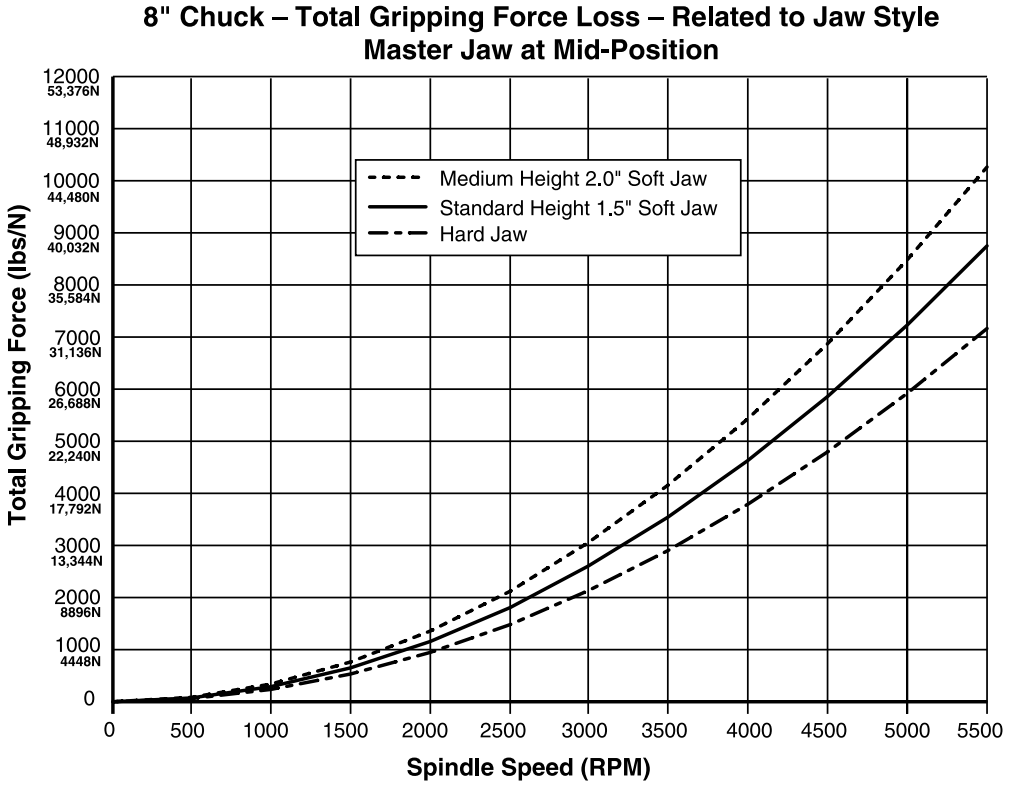
6" Chuck – Total Gripping Force Loss



NOTE: All Charts are based on calculated draw forces.

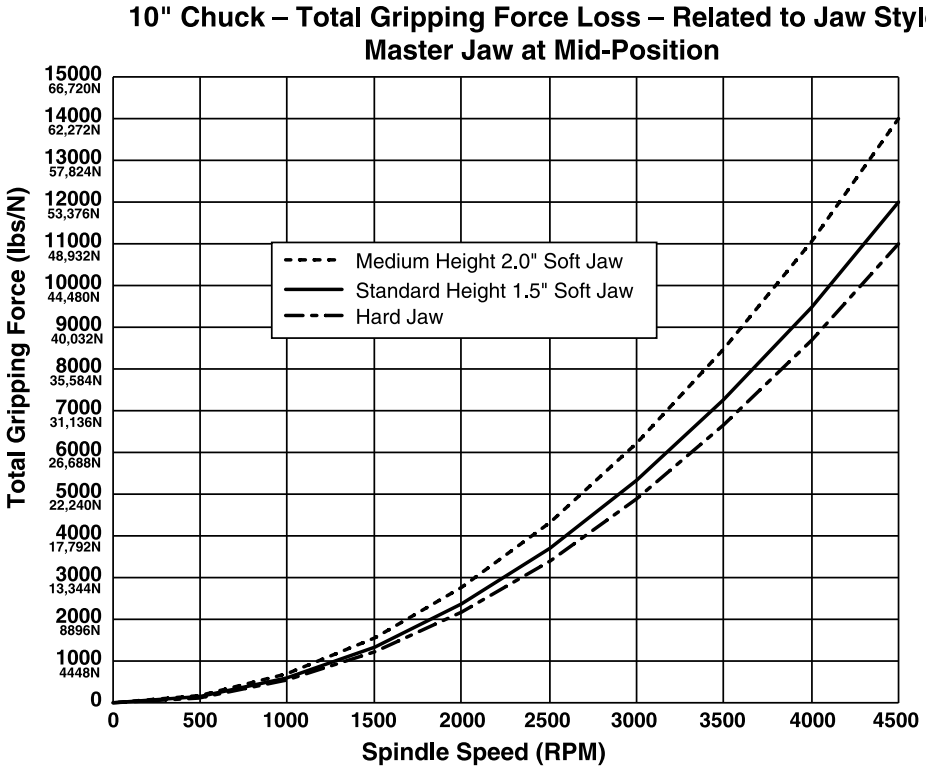
Centrifugal Force of Jaws Corresponding to Spindle Speed – 4" & 8" Sure-Grip® Chucks

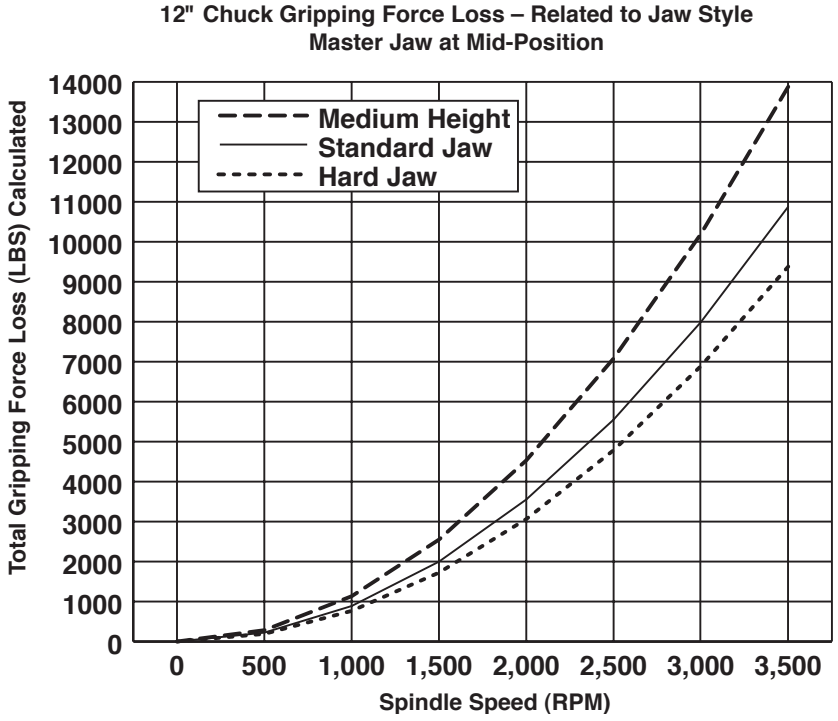




NOTE: All Charts are based on calculated draw forces.

Centrifugal Force of Jaws Corresponding to Spindle Speed – 10 & 12" Sure-Grip® Chucks





NOTE: All Charts are based on calculated draw forces.

Turning Example Calculation (continued)

4. Find **"Fsp_Q"** Initial Gripping Force (Formula 3):

Fsp_Q = S_z x (Fsp_z + Fc)

Known: **Fsp_z** = 12,077N
Fc = 3,111N
S_z = 2 (length factor from table 5, should never be less than 1.5)

Fsp_Q = 2 x (12,077 + 3,111)
Fsp_Q = 2 x (15,188)

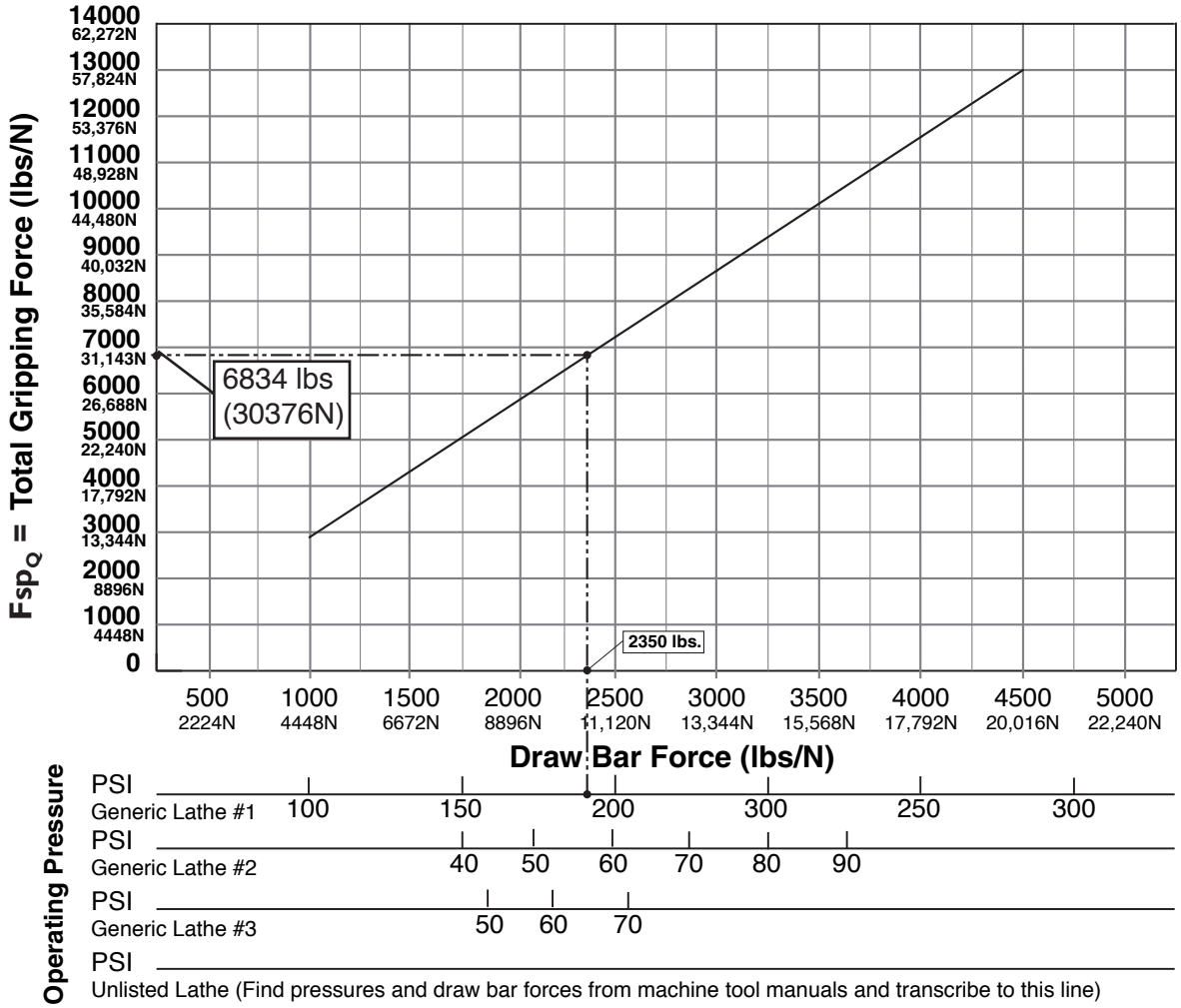
Fsp_Q = 30,376N (6834 lbs) *Round Off*

5. Find the Draw Bar Force and pressure required for the actuating cylinder.
Use the graph shown below (Gripping Force Operating Power Chart for the 6" Sure-Grip® Chuck)
Use the initial gripping force results from step 4 **(Fsp_Q = 30,376N)** to find draw bar force and the actuating cylinder's pressure setting.

Known: **Fsp_Q = 30,376N (6834 lbs)**

Draw Bar Force = 10,444N (2350 lbs) *Round Off*
Actuating Cylinder's pressure = 190 psi

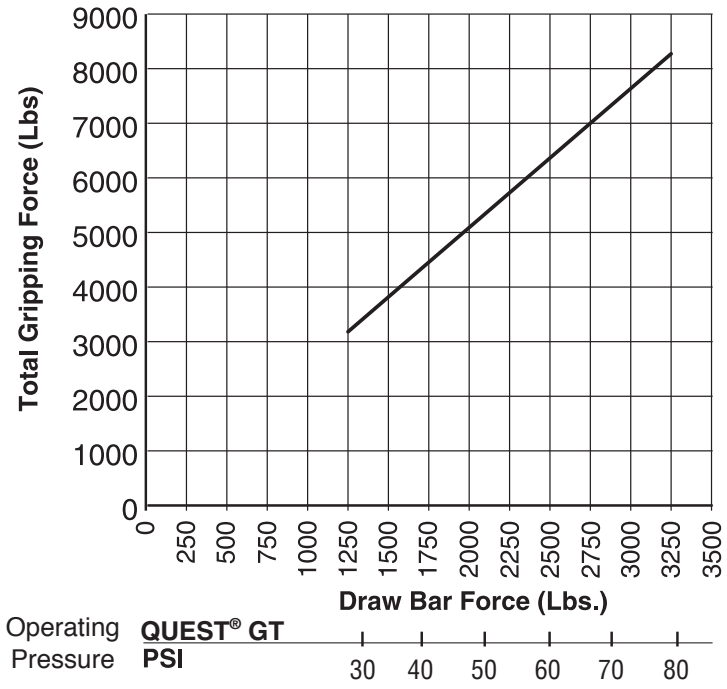
Total Gripping Force – Draw Bar Force – Operating Pressure
6" Sure-Grip Chuck



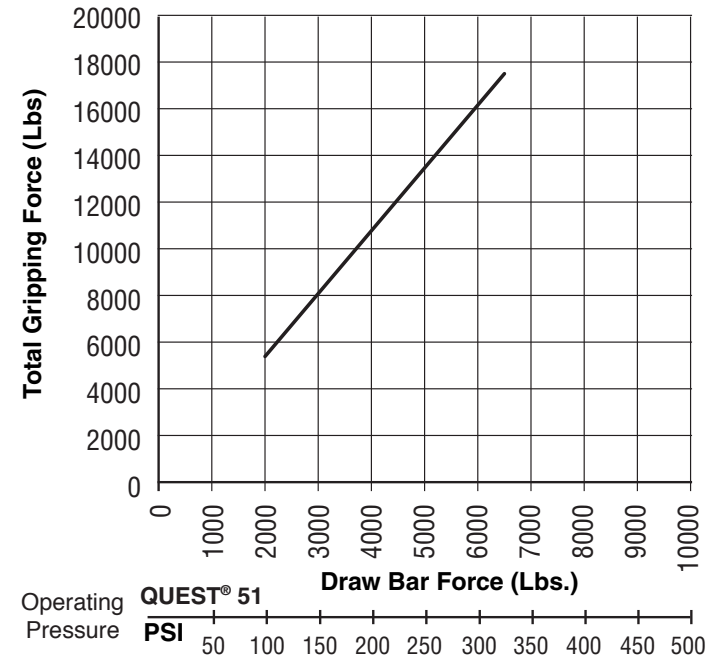
NOTE: All Charts are based on calculated draw forces.

Total Gripping Force/Draw Bar Force/Operating Pressure – 4" & 8" Sure-Grip® Chucks

Total Gripping Force – Draw Bar Force – Operating Pressure
4" Sure-Grip Chuck



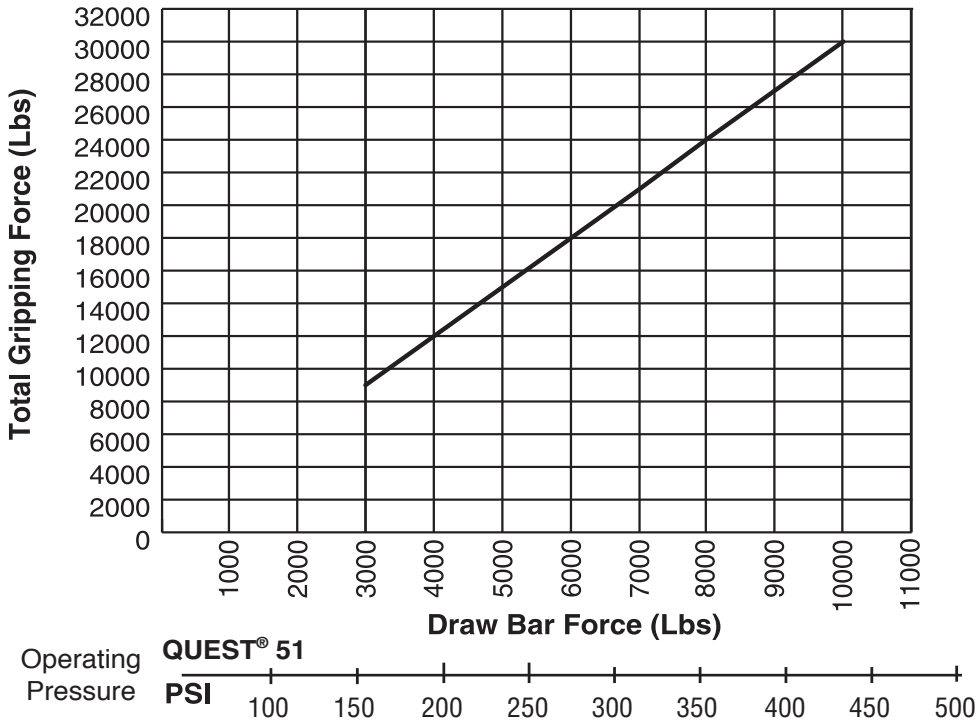
Total Gripping Force – Draw Bar Force – Operating Pressure
8" Sure-Grip Chuck



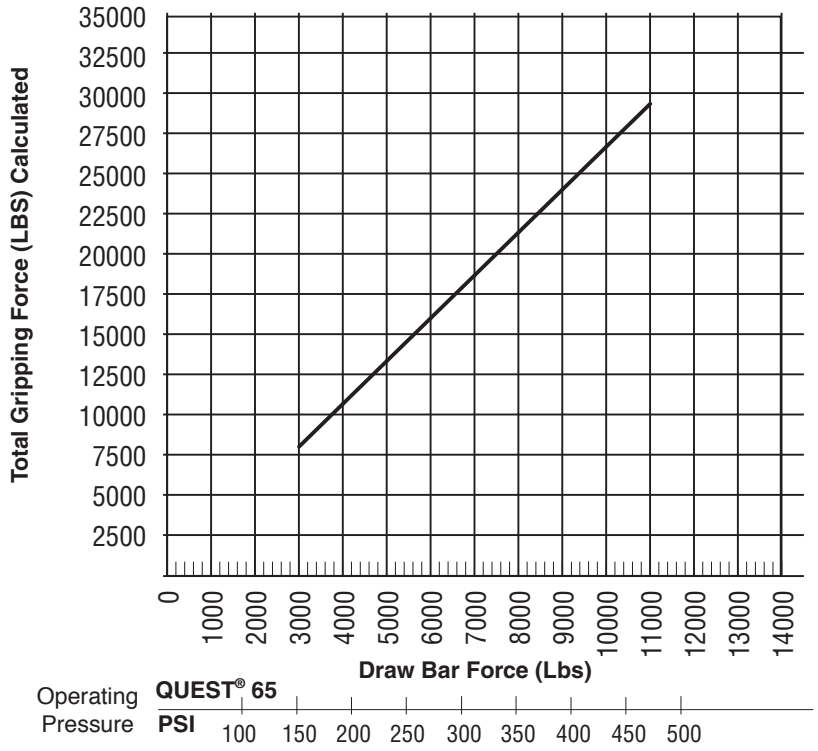
NOTE: All Charts are based on calculated draw forces.

Total Gripping Force/Draw Bar Force/Operating Pressure – 10" & 12" Sure-Grip® Chucks

Total Gripping Force – Draw Bar Force – Operating Pressure
10" Sure-Grip Chuck



Total Gripping Force – Draw Bar Force – Operating Pressur
12" Sure-Grip Chuck



Other Cutting Force Calculations

We have illustrated that it is important to make certain that the draw bar force and the gripping force is adequate to safely grip your workpiece. Loss due to centrifugal force must always be taken into consideration. These losses are due to RPM, jaw height & mass and workpiece configuration. The jaw force must be adequate to grip the part during the cutting operations as illustrated by the turning example.

There are many other types of machining operations such as drilling, tapping, broaching, facing, cutoff, knurling, threading, grooving and skiving which exert force on the chuck. The cutting tool rake angles and design configurations affect the gripping force of the chuck differently. It is beyond the scope of this publication to be able to cover all the cutting forces and torques generated by the various types of tools made by hundreds of manufacturers.

The user of this chuck must acquire and thoroughly understand the technical report ISO # TR-13618 "**Code of Practice for Safe Operation of Work Holding Chucks Used on Lathes**" published by the American National Standards Institute (ANSI). This publication covers the formulas necessary to calculate the forces acting upon the chuck assembly allowing the user to determine if the workpiece is safely held by the chuck. The "**Machining Data Handbook**" by Machinability Data Center (Metcut Research Association Inc.) has tables giving the torque and force requirements of most styles of tooling used on a lathe. Tool manufacturers such as Kennametal, Valenite, Iscar, and others have publications which relate to their specific tooling.

It is the responsibility of the user to make certain that the workpiece is safely gripped by the chuck.

Bolt Torque Chart for 4, 5 and 6" Sure-Grip® Chucks

	M6 – 126 In.Lbs.(14 Nm)	M8 – 315 In.Lbs.(36 Nm)	M10 – 545 In.Lbs.(62 Nm)	M10 – 612 In.Lbs.(70 Nm)	M10 – -30 Ft.Lbs.(41Nm)	M12 – 90 Ft.Lbs.(122 Nm)	M14 – 120 Ft.Lbs.(162 Nm)	M16 – 120 Ft.Lbs.(162 Nm)	M16 – 200 Ft.Lbs.(270 Nm)	M20 – 330 Ft.Lbs.(450 Nm)	5/16" - 18 TPI 382 In.Lbs.(43 Nm)	3/8" - 16 TPI – 675 In. Lbs.(76 Nm)	7/16" - 14 TPI – 90 Ft.Lbs.(122 Nm)	1/2" - 13 TPI – 125 Ft.Lbs.(170 Nm)
4" Chuck - Hardinge Lathe A2-4 Metric Series (SCA 2000304 A24H)														
Chuck to Spindle				X									X	
Top Plate to Body	X													
Top Jaw to T-Nut		X												
5" Chuck - Hardinge Lathe A2-5 Metric Series (SCA 2000305 A25H)														
Chuck to Spindle				X									X	
Top Plate to Body		X												
Top Jaw to T-Nut		X												
5" Chuck - Non-Hardinge Lathe A2-5 Metric Series (SCA 2200305 A25C)														
Chuck to Spindle				X									X	
Top Plate to Body		X												
Top Jaw to T-Nut		X									X			
6" Chuck - Hardinge Lathe A2-5 Metric Series (SCA 2000306 A25H)														
Chuck to Spindle				X									X	
Top Plate to Body		X												
Top Jaw to T-Nut				X										
Quick Change Top Jaw to I-Beam					X									
6" Chuck - Hardinge Lathe A2-5 Metric Series (SCA 2300306 A25E)														
Chuck to Spindle				X										
Top Plate to Body		X												
Top Jaw to T-Nut				X										
Quick Change Top Jaw to I-Beam					X									
6" Chuck - Hardinge Lathe A2-6 Metric Series (SCA 2000306 A26H)														
Chuck to Spindle						X								
Top Plate to Body		X												
Top Jaw to T-Nut				X										
Quick Change Top Jaw to I-Beam					X									
6" Chuck - Hardinge Lathe A2-6 Metric Series (SCA 2000306 A26L)														
Chuck to Spindle						X								
Top Plate to Body		X												
Top Jaw to T-Nut				X										
Quick Change Top Jaw to I-Beam					X									
6" Chuck - Non-Hardinge Lathes & Hardinge Talent 6/45 A2-5 Metric Series (SCA 2300306 A25C, SC 2300306 A25T)														
Chuck to Spindle				X									X	
Top Plate to Body		X												
Top Jaw to T-Nut				X										
Quick Change Top Jaw to I-Beam					X									

Bolt Torque Chart for 8" Sure-Grip® Chucks

	M6 – 126 In.Lbs.(14 Nm)	M8 – 315 In.Lbs.(36 Nm)	M10 – 545 In.Lbs.(62 Nm)	M10 – 612 In.Lbs.(70 Nm)	M10 – -30 Ft.Lbs.(41Nm)	M12 – 90 Ft.Lbs.(122 Nm)	M14 – 120 Ft.Lbs.(162 Nm)	M16 – 120 Ft.Lbs.(162 Nm)	M16 – 200 Ft.Lbs.(270 Nm)	M20 – 330 Ft.Lbs.(450 Nm)	5/16" - 18 TPI 382 In.Lbs.(43 Nm)	3/8" - 16 TPI – 675 In.Lbs.(76 Nm)	7/16" - 14 TPI – 90 Ft.Lbs.(122 Nm)	1/2" - 13 TPI – 125 Ft.Lbs.(170Nm))
8" Chuck - Hardinge Lathe A2-5 Metric Series (SCA 2000308 A25H)														
Chuck to Spindle						X								X
Spindle Adapter to Spindle				X								X	X	
Top Plate to Body				X										
Top Jaw to T-Nut						X								
Quick Change Top Jaw to I-Beam					X									
8" Chuck - Hardinge Lathe - A2-6 Metric Series (SC 2000308 A26Q, SCA 2000308 A26H)														
Chuck to Spindle						X								X
Top Plate to Body				X										
Top Jaw to T-Nut						X								
Quick Change Top Jaw to I-Beam					X									
8" Chuck - Hardinge Lathe A2-6 Metric Series (SC 2200308 A26E)														
Chuck to Spindle						X								
Top Plate to Body				X										
Top Jaw to T-Nut						X								
Quick Change Top Jaw to I-Beam					X									
8" Chuck - Non-Hardinge Lathes & Hardinge Talent 8/52 A2-6 Metric Series (SCA 2200308 A26C, SC 2300308 A26C, SC 2200308 A26T, SC 2200308 A26T)														
Chuck to Spindle						X								X
Top Plate to Body				X										
Top Jaw to T-Nut						X								
Quick Change Top Jaw to I-Beam					X									

Bolt Torque Chart for 10" Sure-Grip® Chucks

	M6 – 126 In.Lbs.(14 Nm)	M8 – 315 In.Lbs.(36 Nm)	M10 – 545 In.Lbs.(62 Nm)	M10 – 612 In.Lbs.(70 Nm)	M12 – 90 Ft.Lbs.(122 Nm)	M12 – -30 Ft.Lbs.(41Nm)	M14 – 120 Ft.Lbs.(162 Nm)	M16 – 120 Ft.Lbs.(162 Nm)	M16 – 200 Ft.Lbs.(270 Nm)	M20 – 330 Ft.Lbs.(450 Nm)	5/16" - 18 TPI 382 In.Lbs.(43 Nm)	3/8" - 16 TPI – 675 In.Lbs.(76 Nm)	7/16" - 14 TPI – 90 Ft.Lbs.(122 Nm)	5/8" - 11 TPI – 200 Ft.Lbs.(270 Nm)
10" Chuck - Hardinge Lathe														
A2-6 Metric Series (SCD 2000310 A26H, SC 2000310 A26Q)														
Chip Shield	X													
Chuck to Spindle									X					
Spindle Adapter to Spindle					X									
Top Plate to Body			X											
Top Jaw to T-Nut					X									
Quick Change Top Jaw to I-Beam						X								
10" Chuck - Hardinge Lathe														
A2-8 Metric Series (SCD 2000310 A28H)														
Chip Shield	X													
Chuck to Spindle									X					X
Top Plate to Body			X											
Top Jaw to T-Nut					X									
Quick Change Top Jaw to I-Beam						X								
10" Chuck - Non-Hardinge Lathe and Hardinge Lathes														
A2-8 Metric Series (SCC 2200310 A28C, SC 2300310 A28C,														
SC 2200310 A28T, SC 2300310 A8SR)														
Chip Shield	X													
Chuck to Spindle									X					X
Top Plate to Body			X											
Top Jaw to T-Nut					X									
Quick Change Top Jaw to I-Beam						X								
10" Chuck - Hardinge Lathe - Hardinge-EMAG VL5														
A2-6 Metric Series (SC 2200310 A28E)														
Chuck to Spindle					X									
Top Plate to Body				X										
Top Jaw to T-Nut					X									
10" Chuck - Hardinge Vertical Lathe VT100														
A2-8 Metric Series (SCC 2000310 A28V)														
Chip Shield		X												
Chuck to Spindle									X					
Top Plate to Body				X										
Top Jaw to T-Nut						X								
Draw Head to Draw Bar		X												
Quick Change Top Jaw to I-Beam						X								
10" Chuck - Hardinge Vertical Lathe VT200														
A2-11 Metric Series (SCC 2000310 A11V)														
Chip Shield		X												
Chuck to Spindle Adapter										X				
Spindle Adapter to Spindle										X				
Top Plate to Body				X										
Top Jaw to T-Nut						X								
Draw Head to Draw Bar		X												
Quick Change Top Jaw to I-Beam						X								

Bolt Torque Chart for 12" Sure-Grip® Chucks

	M6 – 126 In.Lbs.(14 Nm)	M8 – 315 In.Lbs.(36 Nm)	M10 – 545 In.Lbs.(62 Nm)	M10 – 612 In.Lbs.(70 Nm)	M12 – 90 Ft.Lbs.(122 Nm)	M14 – 120 Ft.Lbs.(162 Nm)	M16 – -50 Ft.Lbs.(68Nm)	M16 – 120 Ft.Lbs.(162 Nm)	M16 – 200 Ft.Lbs.(270 Nm)	M20 – 330 Ft.Lbs.(450 Nm)	5/16" - 18 TPI 382 In.Lbs.(43 Nm)	3/8" - 16 TPI – 675 In.Lbs.(76 Nm)	7/16" - 14 TPI – 90 Ft.Lbs.(122 Nm)	1/2" - 13 TPI – 125 Ft.Lbs.(170 Nm)
12" Chuck- Hardinge Lathe														
A2-8 Metric Series (SCA 2300312 A28H)														
Chip Shield	X													
Chuck to Spindle									X					
Top Plate to Body						X								
Top Jaw to T-Nut								X						
Quick Change Top Jaw to I-Beam							X							
12" Chuck - Non-Hardinge Lathe														
A2-8 Metric Series (SCA 2300312 A28C)														
Chip Shield	X													
Chuck to Spindle									X					
Top Plate to Body						X								
Top Jaw to T-Nut								X						
Quick Change Top Jaw to I-Beam							X							
12" Chuck - Hardinge Vertical Lathe VT100														
A2-8 Metric Series (SCA 2300312 A28V)														
Chip Shield	X													
Chuck to Spindle									X					
Top Plate to Body						X								
Top Jaw to T-Nut								X						
Draw Head to Draw Bar		X												
Quick Change Top Jaw to I-Beam							X							
12" Chuck - Hardinge Vertical Lathe VT200														
A2-11 Metric Series (SCA 2300312 A11V)														
Chip Shield	X													
Chuck to Spindle									X					
Spindle Adapter to Spindle										X				
Top Plate to Body						X								
Top Jaw to T-Nut								X						
Draw Head to Draw Bar		X												
Quick Change Top Jaw to I-Beam							X							

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