Pratt Burnerd America

GRIPFAST HIGH SPEED QUICK CHANGE CHUCK MADE IN THE USA

Pratt Burnerd America. 3977 Emerald Dr. Kalamazoo, MI 49001 Ph. 800-253-0820

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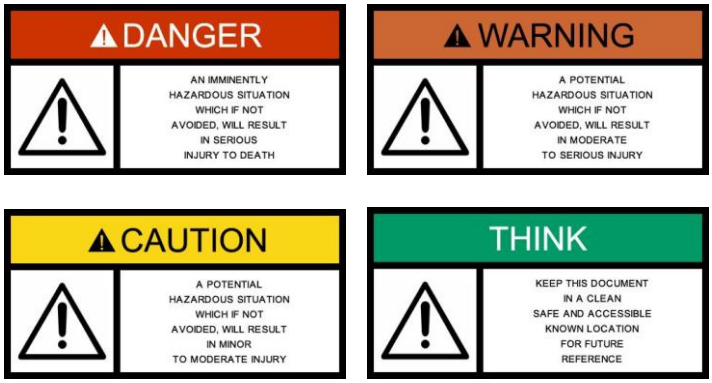
A well-established range of chucks designed for use on CNC and FMS machines. They combine high operating speeds of up to 6000 rev/min using standard top jaws with quick change base jaws allowing rapid set up and jaw change over times as little as 40 seconds. The range is available with 60˚serrations as standard or alternatively 90˚serrations, American cross tenon, square or acme jaws.

For ensuring the safe and correct use of this product, please read and pay attention to all the instructions and keep this manual so that it can be retrieved whenever needed.

1. **Safety Alert Symbols**



2. **Qualified Operators** ⚠ DANGER

Pratt Burnerd clamping equipment may be set up, operated and maintained by those only who are trained to do so and/or have several years experience.
Persons handling clamping equipment who do not possess the necessary training or experience run the risk of potential injury from the clamping motion and the forces generated.

3. **Maximum Permitted Speed** ⚠ WARNING

The maximum permitted speed may only be run at maximum permitted actuation force and using a perfectly operating chuck. For maximum permitted speed ratings see page 3.

4. **Exceeding The Permitted Speed** ⚠ WARNING

The centrifugal forces caused by excessive rotational speeds may result in individual parts of the clamping device becoming detached or the work piece being ejected, with the potential to
cause harm to those in the close vicinity, considerable damage to the machine and the chuck itself.
The maximum speed and the operating force/pressures are embossed on the body and may not be exceeded for the reasons mentioned above.

5. **Clamping Range** ⚠ WARNING

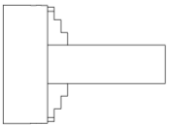
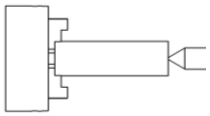
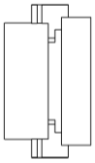
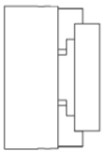
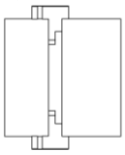
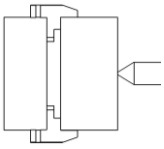
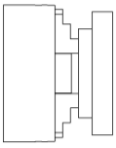
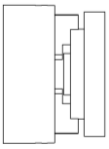
The maximum clamping range may not be exceeded, the lack of sufficient engagement between the clamping jaw and the component part could cause a negative effect on machining, work piece ejection or injury to the operator. For clamping ranges see page 4.
To check the chucking force, it is recommended using the Pratt Burnerd Radio Frequency Gripmeter.
For optimum performance the clamping force should be checked at regular intervals, the intervals are dependent on the application, for more information contact Pratt Burnerd.

6. **Mounting** ⚠ WARNING

Clean any excess protective grease from the chuck and inspect for any damage which may have occurred in transit. Before mounting the chuck ensure the machine spindle is running true by checking the chuck locating faces both radial and axial directions using a dial indicator. The maximum error should not exceed 0.005mm full indicator movement (FIM). Also check the mounting faces are clean and undamaged. If the chuck is supplied with a separate mounting adaptor, this should match the machine spindle and should be secured to it using the fasteners provided. For torque values see page 4.
Check the chuck mounting spigot and face for true running.
The adaptor should run within 0.01mm FIM on the Face and 0.02mm on the diameter. Wipe the chuck location faces clean and mount the chuck to the spindle and adaptor using screws provided. Cycle the hydraulic cylinder to ensure that it is fully extended. Position the actuating sleeve as far back as possible, screw the sleeve onto the drawtube by rotating the chuck or manually rotating the spindle until the distance between chuck and spindle mounting measures 1mm more than the sleeve movement. Align the mounting holes in the chuck with the nearest hole in the adaptor plate. Manually push the chuck onto the spindle nose and secure loosely with mounting bolts provided. Actuate the cylinder at minimum pressure to pull the chuck firmly onto the spindle nose and then tighten the mounting bolts to the specified torque. Actuate the chuck at reduced pressure several times to check for correct operation ensuring that the full jaw movement is obtained. Adjust the cylinder pressure to the appropriate value.

7. **Operating** ⚠ WARNING

In order to ensure safe clamping of the work piece to withstand the machining forces occurring and prevent injury, the correct loading practices below should be adhered to:

Wrong	Right
Work piece projected length too great relative to chuck size. 	Support Workpiece between centers. 
Chucking Diameter too great. 	Use a larger chuck. 
Workpiece too heavy and chucking step too short. 	Support between centers and extend chucking step. 
Chucking diameter too small. 	Chuck using greatest possible chucking diameter. 

The illustrated examples do not cover all the possible dangerous situations.

It is the responsibility of the user to recognize possible sources of danger and to adopt the necessary measures.
Despite all precautionary measures, an element of risk can not be excluded

8. Maintenance

⚠ WARNING

The reliability of the clamping equipment can only be ensured if the maintenance guidelines below are strictly observed. Failure to observe these instructions will result in loss of grip and could cause an accident.

- All chucks should be checked regularly for wear, cracks and accident damage, the following cause breakages and should be avoided:
  - Do not use a badly fitting Allen keys
  - Do not use the hand release pin to remove the chuck from the spindle.
  - Do not leave Allen keys in the chuck when the lathe is started.
  - Do not start the lathe until all is clear. Collision between chuck and lathe will almost certainly damage both.
  - Do not use the chuck on heavy work where the chuck jaws project appreciably from the chuck body. Use the correct size chuck for the job.
  - Do not attempt to insert base jaws into the wrong jaw way. The jaws and jaw ways are numbered and a stop screw is fitted correspondingly.
  - Do not tamper with the chuck. If inaccuracy is found, check the spindle nose or adaptor plate for true running and make sure there is no dirt of foreign matter between the mounting faces.
  - If in doubt, do not use the chuck, contact Pratt Burnerd
- Lubricate the chuck at regular intervals using Pratt Burnerd chuck lubricant PB160Z, Refer to material data sheet for all information referring to PB160Z. **Do not use any other brand of lubricant**. One shot should be applied to each of the three grease nipples in the chuck periphery with the grease gun and to obtain maximum benefit, the chuck jaws should be cleaned and lubricant applied with a clean brush at every jaw change.
- If spares are fitted to the chuck, **ensure these are supplied by Pratt Burnerd**, if screws are loosened or replaced, defective fastening or replacement may lead to a damage of the machine or injury to the operator. The torque table (Pg 4) should be used when retightening any fasteners.
  Ensure that the chuck has been tested before reusing.

USE ONLY GENUINE PRATT BURNERD REPLACEMENT PARTS

9. Technical Information

⚠ WARNING

Chuck Size (mm)	Total Static Grip (KN)	Maximum Speed (rpm)	Jaw Stroke (mm)	Sleeve Stroke (mm)	Max Operating Force (KN)	Overall Weight (Kg)
165	47	6000	3.5	16	16	16
210	66	5500	3.5	16	24	28
210KB	66	5500	3.5	16	24	27
254	88	5000	4	18.5	32	42
265	88	5000	4	18.5	32	51
305	121	4200	4	18.5	44	68
380	139	3200	5	20	60	135
460	170	2500	6	25	69	200
500	170	2500	6	25	69	250

10. Clamping Ranges

⚠ WARNING

Chuck size (mm)	D1	D2	D3	D4	D5	D6
165	7-80	46-115	92-164	18-87	68-134	116-184
210	10-104	60-152	108-203	25-119	84-176	136-225
210KB	24-104	74-152	122-203	39-119	98-176	150-225
254	17-144	70-190	117-241	30-159	89-214	140-266
265	28-155	81-201	128-251	41-170	100-225	151-277
305	16-160	70-204	146-288	26-190	110-272	190-356
380	24-202	86-250	180-350	58-235	160-335	260-433
460	64-284	126-332	220-432	98-317	200-417	300-515
500	68-320	130-368	224-468	102-353	204-453	304-551

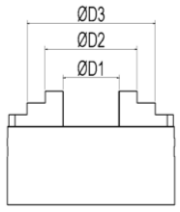


Figure 1

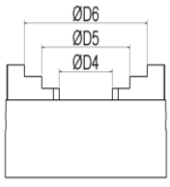


Figure 2

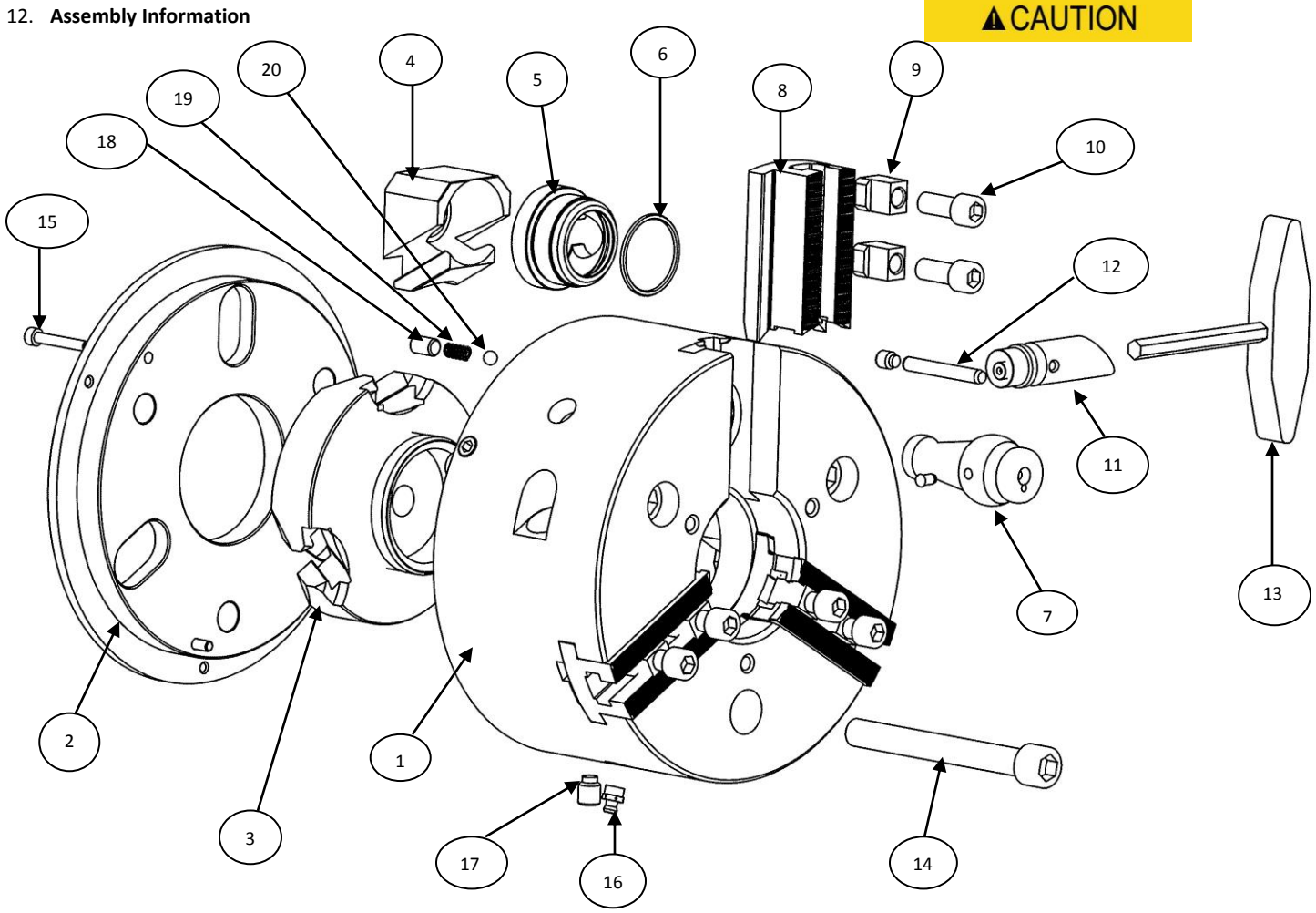
11. **Tightening Torques for Mounting and Jaw Bolts**

⚠CAUTION

Screw Type	M2	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M24	
Socket Head Cap	<1 FT-LB	1-2 FT-LB	1-5 FT-LBS	5-10 FT-LBS	10-20 FT-LBS	20-30 FT-LBS	40-60 FT-LBS	40-60 FT-LBS	80-100 FT-LBS	80-100 FT-LBS	80-100 FT-LBS	80-100 FT-LBS	80-100 FT-LBS	
Socket Counter sunk	_	1-2 FT-LB	1-5 FT-LBS	5-10 FT-LBS	10-20 FT-LBS	20-30 FT-LBS	40-60 FT-LBS	40-60 FT-LBS	_	80-100 FT-LBS	_	80-100 FT-LBS	80-100 FT-LBS	
Button Head Sockets	_	1-2 FT-LB	1-5 FT-LBS	5-10 FT-LBS	10-20 FT-LBS	20-30 FT-LBS	40-60 FT-LBS	40-60 FT-LBS	_	_	_	_	_	
Socket Head Shoulder	_	_	_	5-10 FT-LBS	10-20 FT-LBS	20-30 FT-LBS	40-60 FT-LBS	40-60 FT-LBS	_	80-100 FT-LBS	_	80-100 FT-LBS	_	

12. **Assembly Information**

⚠CAUTION



When reassembling the chuck, be aware of sharp edges, burr's and collected metal swarf which could potentially cause injury.

No	Part Name	Q'ty	No	Part Name	Q'ty	No	Part Name	Q'ty	No	Part Name	Q'ty
1	Chuck Body	1	6	Socket O Ring	3	11	Hand Release Pin	3	16	Grease Nipple	3
2	Back Body	1	7	Lever & Lever Pin	3	12	Tapped Dowel	3	17	Adjusting Screw	3
3	Sleeve	1	8	Base Jaws	3	13	Release Key	1	18	Socket Set Screw	3
4	Actuator	3	9	Tee Nut	6	14	Mounting screw	3	19	Compression Spring	3
5	Body Bushing	3	10	Tee Nut Screw	6	15	Back Body Screw	3	20	Ball Bearing	3

13. **Troubleshooting**

⚠CAUTION

Ensure the machine is completely stopped, check the following points and perform the countermeasures.

Trouble	Cause	Countermeasure
Chuck does not work	Broken components.	Disassemble the chuck and replace with new parts supplied by Pratt Burnerd International.
Chuck does not work	Seized in components	Disassemble, remove the burr and lubricate.
Chuck does not work	Rusted parts.	Disassemble and remove rust.
Work Slips	Forming diameter of soft jaws is not concordance with workpiece diameter.	Machine soft jaws again.
Work Slips	Insufficient gripping force.	Check the cylinder for any faults & operating pressure
Work Slips	Cutting torque over.	Calculate the cutting torque and set the cutting conditions again.
Work Slips	Insufficiently lubricated.	Disassemble, clean and lubricate the chuck.
Poor accuracy	Jaw mounting bolts not properly tightened	Screw the jaw mounting bolts with the specified torque
Poor accuracy	Over height top jaw	Modify top jaw height
Poor accuracy	Incorrect centering of the chuck	Clock the chuck OD and face, if there is run out, remove, clean and refit

14. **Ordering Spare Parts**

THINK

USE ONLY GENUINE PRATT BURNERD REPLACEMENT PARTS

Before contacting Pratt Burnerd, gather as much information relating to the chuck as possible. Product code numbers are in the form of four digits followed by five digits i.e. 1234-56789. Below are the most common Spares requirements. Serrations specified are supplied as 1.5 X 60˚ and 1/16" X 90˚.

	Chuck Size (mm)						
Item	Ø165	Ø210	Ø254	Ø305	Ø380	Ø460	Ø500
Base Jaws 60˚ serrations	8130-17623	8130-21623	8130-26623	8130-31623	8130-40623	8130-46623	8130-50623
Hard Top Jaws 60˚	HJ06	HJ08	HJ10	HJ12-1	HJ15	HJ15	HJ24-1
Soft Top Jaws 60˚	8140-17525	8140-21525	8140-26525	8140-31525	8140-40525	8140-40525	8140-50525
Tee Nut 60˚	8130-17590	8130-21625	8130-265920	8130-31590	8130-40590	8130-50590	8130-50590
Tee Nut SHCS Screw 60˚	M10X25	M12X30	M12X30	M14X40	M20X50	M20X50	M20X50

	Chuck Size (mm)						
Item	Ø165	Ø210	Ø254	Ø305	Ø380	Ø460	Ø500
Base Jaws 90˚ serrations	8130-17610	8130-21610	8130-26610	8130-31610	8130-38610	8130-46610	8130-50610
Hard Top Jaws 90˚	8130-17611	8130-21611	8130-21611	8130-31611	8130-40611	8130-40611	8130-40611
Soft Top Jaws 90˚	8140-17512	2860-21512	2860-21512	2860-32512	2860-40512	2860-40512	2860-40512
Tee Nut 90˚	8820-17591	2870-17591	2870-17591	2870-26591	2870-40591	2870-40591	2870-40591
Tee Nut SHCS Screw 90˚	M8X20	M12X30	M12X30	M16X35	M20X35	M20X35	M20X35

	Chuck Size (mm)						
Item	Ø165	Ø210	Ø254	Ø305	Ø380	Ø460	Ø500
Sleeve (Blank) (common to all)	8130-17760	8130-21760	8130-26760	8130-31760	8130-40760	8130-50760	8130-50760
Release Key (common to all)	10MM HEX	10MM HEX	10MM HEX	10MM HEX	10MM HEX	10MM HEX	10MM HEX
Hand Release Pin	8130-17786	8130-21786	8130-26786	8130-31786	8130-40786	8130-46786	8130-50786

15. **The Setrite Feature**

Pratt Burnerd power chucks are manufactured to the highest tolerances in accordance with all accepted international standards specifications. Indeed, all sizes of Pratt Burnerd power chucks will repeat to within 0.025mm however the absolute accuracy with which a chuck can hold and rotate a component depends in part on the interface between the chuck and spindle nose.

The Pratt Burnerd Setrite feature, which is incorporated on all GRIPFAST (H.S.Q.C.) power chucks, has been designed to compensate for any inaccuracy which may be introduced in mounting the chuck and spindle nose adaptor.

At the rear of the chuck body periphery there are three small cap screws (six on chucks of Ø380mm and above) which control float between the chuck body components or between the chuck and spindle nose adaptor.

The Setrite feature is simple to use, for direct mounting chucks, the chuck should be offered up to the spindle nose in accordance with the instructions on page 2, ensuring that all mating surfaces are thoroughly cleaned. The through mounting bolts should be made hand tight. Check the run out on the chuck periphery using a suitably position dial indicator. Adjustment of the Setrite screws will bring the chuck true on the spindle nose. The through mounting bolts should then be fully tightened.

For chucks with separate adaptors, first mount the adaptor to the spindle nose observing all the usual precautions detailed in the mounting section of this manual. The mounting bolts should be fully tightened. Offer the chuck up to the adaptor, insert the through mounting bolts and tighten them by hand. Adjust the Setrite screws to obtain optimum accuracy and fully tighten the mounting bolts as before.

Once set, the Setrite screws will require no further adjustment unless the chuck is removed from the spindle, when the above procedure should be repeated to re-true the chuck.

16. **How to exchange the High Speed Quick Change jaws**

⚠CAUTION

Actuate the chuck to the closed position (sleeve fully back).

Release the base and top jaw set using the release pin located on the outside diameter of the chuck body with the key supplied.

Only release and change one base jaw at a time.

When released the hand release pin (see Exploded View at Point 11 - item 11) will stand proud of the chuck body o/d.

Fit the next jaw set with appropriately positioned identifying screw. These screws on the underside of the base jaws ensure that the jaw is always used in the same jaw way, loss of accuracy may occur if these screws are moved or removed.

Check to ensure the hand release pin is in the fully closed position (flush with chuck o/d) before moving on to the next jaw.

Complete one jaw change before moving on to the next.

Repeat this procedure on the remaining base jaws.

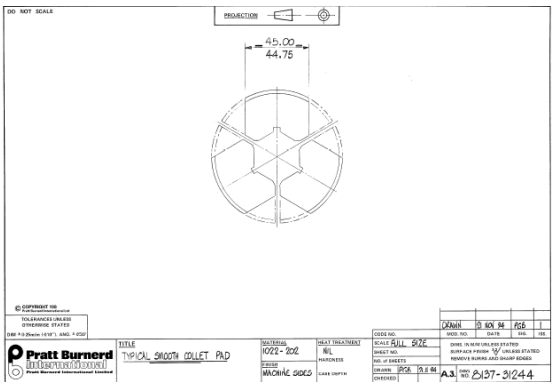
Once all jaws have been changed manually rotate the chuck and check to ensure all the release pins are locked and that the pins are flush with the chuck body.

Note: If the release pins do not lock and unlock freely STOP and contact Pratt Burnerd.

If a base jaw is not relocked with the release pin you will notice this when opening the chuck to grip the next component because this jaw will not open and this would be apparent when trying to grip the part.

17. **Use of Collet pads**

Collet pads are available in smooth, serrated or emergency (to bore out yourself) .They are generally supplied to allow full wrap round of the component but can be wire cut to allow the pad to pass down the jaw way to facilitate quick change of the jaws



18. **Pratt Burnerd H.S.Q.C Jaw Setting Fixture**

⚠CAUTION

Machine uptime can be increased by tooling the spare set of jaws supplied to suit the next operation. This can be carried out manually but it is easier and quicker using the Pratt Burnerd Jaw Setting Fixture, which is supplied as an optional extra.

Chuck Size	Guide Block	Locating Disc	Scale Clamp
Ø165	1	Ø23/1	Full
Ø210	2	Ø25/2	Full
Ø210KB	2	Ø25/2	Cut Away
Ø254	2	Ø32/3	Full
Ø265	2	Ø32/3	Cut Away
Ø305	3	Ø37/4	Full
Ø380	4	Ø42/5	Full
Ø450	4	Ø42/5	Full
Ø480	4	Ø48/6	Full
Ø500	4	Ø48/6	Full

THINK

Notes to Remember

The scale is set using the clamp edge nearest the jaw. For Ø210KB and Ø265, chucks the scale clamp is to be reversed so that the cut away edge is nearest the jaw position. Locating disc position numbers start with position 1 nearest the scale spindle, ascending outwards position 6. Guide blocks should be positioned and orientated so that the appropriate numbers are aligned with the locating disc centre. Ensure guide blocks, legs and locating disc are tightened before use.

⚠DANGER

19. **Incorrectly secured jaws**

Ensure proper engagement of the Hand Release Pins when changing jaws, improperly secured jaws can be expelled from a rotating chuck with risk of injury to operators and or damage to the component and machine. The Hand Release Pins must align precisely with the periphery of the chuck, if not, remove the jaw and reset. (see point 15).

MATERIAL SAFETY DATA SHEET	
Product Name:	**PRATT BURNERD CHUCK LUBRICANT**
Revision Date:	4-28-21
Revision:	01
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Pratt Burnerd America

1. product and company identification

Product trade name:	Pratt Burnerd Chuck Lubricant
Product code:	PB16OZ
Manufacturer:	HUSK-ITT Corporation
CHEMTREC:	001 800 424-9300 (24 Hour)
Supplier:	3977 Emerald Drive Kalamazoo, MI 49001 Tel.: 800-253-0820
Generic description:	Molybdenum disulphide grease
Colour:	Grey / charcoal
Physical form:	Paste.
Odour:	None.

2. composition/information on ingredients

Hazardous Ingredients

If present IARL, NPT and OSHA carcinogens and chemicals subject to reporting requirements of SARA title 111, section 313 are identified in this section: None.

(Non hazardous) Components	CAS number	TLV	PEL	%
Petroleum oils	64741-62-7	N/E	N/E	60-70
	64741-96-4	N/E	N/E	60-70
Lithium Hydroxystearate	7620-77-1	N/E	N/E	5-10
Molybdenum Disulphide	1317-33-5	N/E	N/E	15-25
Proprietary Components	**N.J.T.S.R.N**			
	80100362-5009P			<1.0

3. hazards identification

Effects of over exposure: May cause irritation to eyes and skin on sensitive individuals.

4. first aid measures

Eye contact:	Flush eyes thoroughly with water for at least 15 minutes. If irritation occurs see doctor.
Skin contact:	Wash contact areas with soap and water. See doctor if symptoms persists.
Inhalation:	Remove to fresh air. See doctor if irritation/discomfort persists.

Ingestion:	Call Doctor. Do not induce vomiting. Keep warm.
Additional:	Prolonged or repeated contact may produce mild skin irritation and inflammation. Personnel with pre-existing skin disorder should avoid contact.

5. fire fighting measures

Extinguishing media:	Dry chemical, water fog, carbon dioxide, and sand/earth.
Special fire fighting procedures:	Treat as oil fire: Use self-contained breathing apparatus.
Unusual fire and explosion hazards:	None.
NFPA profile:	Health: 1, Flammability: 1, Reactivity: 1, Personal Protection: B
Hazardous decomposition products:	Carbon monoxide, carbon dioxide, metallic and sulphur compounds.

6. accidental release measures

Notification Procedures:	Report spills as required to appropriate authorities.
Spillage Procedures:	Stop flow, scrape, wipe mop up or absorb with diatomaceous earth or other inert material. Store in appropriate container for disposal.

7. Handling and storage

Handling:	No special precautions are necessary beyond normal hygiene practices.
Storage:	Avoid storage near open flame or other sources of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection:	Normally not needed.
Skin protection:	Neoprene or nitrile rubber gloves recommended.
Eye protection:	Approved safety glasses or goggles.
Other protection:	Chemically resistant boots and apron recommended.
Work/hygienic practices:	Use standard methods.

9. physical and chemical properties

Form/colour:	Paste/dark grey or black
Odour:	None.
Specific gravity:	1.02
Water solubility:	Nil
Evaporation rate:	N/A
Boiling point, °C:	N/A
Melting point, °C:	N/A
Volatile by volume, %:	None
Vapour pressure:	N/A
vapour density:	N/A
flash point:	(ASTM D92) C.O.C: 232°C (450°F)

Upper flammable limit:	N/D
Lower flammable limit:	N/D

10. STABILITY AND REACTIVITY

Stability:	Stable
Incompatibility (materials to avoid):	Strong oxidising agents.
Conditions to avoid:	Extreme heat (do not heat above flash point)
Polymerisation:	Will not occur.
Hazardous decomposition products:	Carbon monoxide, carbon dioxide, metallic and sulphur compounds.

11. Toxicological information

Acute Toxicological Data:	Not established.
Component Toxicological information:	Not established.
Special Hazard Information on components:	No known applicable information.

12. ecological information

Environmental fate and effects:	Not established.

13. Disposal considerations

Not established.

14. Transport Information

DOT Hazardous classification:	Not regulated grease or oil - N.O.S.

15. Regulatory information

Not established.

16. Other Information

Use:	Lubricant – especially formulated for use on work holding chucks.
Note:	This product is not intended for any other purpose.
Prepared by:	Pratt Burnerd America.

Pratt Burnerd America

3977 Emerald Dr.

Kalamazoo, MI 49001

Ph: 1 800-253-0820

Fax: 269-384-3201

info@prattburnerd.com