

Material	
1.1 Structural Steel	All HMT tooling in this category are suitable for the common grades of steel
1.2 Hardened Steel	This category of tooling is not suitable for Hardened steel applications. Consider the HMT Ultra range of broaching and drilling tools
1.3 Stainless Steel	When using Reamers on stainless steel, lower RPM and a Rotary setting is recommended, due to the higher RPM of impact wrench tooling which contributes to heat buildup
1.4 Non Ferrous	All HMT tooling in this category is suitable for Non Ferrous materials
1.5 Additional Notes	Heat Affected Zones (HAZ) are areas of metal that have been exposed to welding, flame cutting or other high temperatures and are often harder to drill, enlarge or re-work. In these situations it usually helps to reduce RPM speeds, increase feed pressure, and use a rotary drilling machine with a powerful motor
	Plasma or Flame Cut holes: Flame cut or profiled holes can often be tapered or have a poor finish. Specify drilled holes to avoid these problems. Flame cut, laser cut or punched holes may not be possible to ream with Impact Wrenches. In this situation ream with a slow speed Magnet Drill
	Punched holes: When reworking holes that have been created by punching, note that the edge will have been hardened by the shearing action of the punch which affects the structure of the material

Apparatus / Drilling Machines	
2.1 Impact Wrench	Impact Wrenches and Impact Drivers are recommended for reamer applications for enlarging drilled holes in steel material. Ensure correct torque settings are used. Select the correct torque for Impact tools using the relevant Torque Table on P129 / P142. If exact match is not available select the closest torque setting above the recommendation
	When using Impact Wrenches, this tooling will perform best on higher torque settings. Low torque can lead to the cutting tool stalling during the cut, which can lead to a breakage.
2.2 Rotary Pistol Drill	Reamers up to 12mm diameter can be used in a Pistol Drill at Low RPM. Sizes above 14mm diameter will generate high levels of kickback- this can be avoided by using an Impact Wrench or Magnetic Drill
2.3 Compact Magnet Drill	Compact Magnet Drills do not usually have enough stroke or working length to use reamers.
2.4 Large Magnet/Pillar Drill	All HMT tools in this category can be adapted for use in a large magnet drill with either a Weldon adapter or a morse taper adapter
2.5 Additional Notes	When using a Magnet Drill regularly check that the slides, handles, arbors and movable parts have not vibrated loose over time. Ensure a debris-free surface of sufficient steel thickness for strong magnet hold when Magnet Drilling - (min 10mm)
	When using cordless power-tools, regularly check that sufficient battery charge is still available. Low battery charge results in torque drop, which can damage cutting tools
	If the drilling machine has a variable speed trigger switch (once the appropriate gear setting has been selected) it is recommended to use the full speed available by fully depressing the trigger switch. Feathering the trigger will give inconsistent spindle speed and torque

Thickness	
3.1 Sheet Metal up to 4mm	HMT Reamers are suitable for this application
3.2 Standard Plate 5 - 12mm	HMT Reamers are suitable for this application
3.3 Medium Plate 12 - 25mm	HMT Reamers are suitable for this application
3.4 Heavy Plate - above 25mm	HMT Reamers are suitable for this application, the MAX shank will provide best results in heavy thickness materials.
3.5 Additional Notes	HMT Reamers have a tapered flute for the first half of their length, then the rear section of the reamer gives a parallel finish at the maximum diameter

Lubricant	
4.1 SpeedLube	Recommended for all general purpose drilling applications
4.2 BioCut Paste	Recommended for overhead drilling and other applications where liquid lubricant is not suitable
4.3 BioCut Blue	Recommended for hardened steels and stainless steels where heat reduction is critical. Best choice if the material is to be welded or galvanised
4.4 Additional Notes	Ensure regular application of quality cooling lubricant, especially when drilling thick or hardened material.

Accessories	
5.1 Impact Adapters	All the tools in this category are suitable for use in Impact Wrenches (See Torque Table)
5.2 Pistol Drill / Chuck	The Versadrive Hex shank fits into any standard drill chuck. 130mm and 300mm Versadrive Extension Arbors will fit into all drill chucks
5.3 Weldon Adapters	All HMT Reamers can be adapted for use in Magdrills.
5.4 Morse Taper Adapters	501030 Reamers can be adapted for use in Morse Taper type drills with the 111045 Adapters



Best Practice	
6.1 Selecting the correct diameter of reamer	Do not attempt to increase the existing hole diameter beyond 2-3mm. If a larger, finished hole size is required, use the next size reamer to 'step up' until the finished hole diameter is reached. Reamer should be rotating before starting the cut
6.2 What is the correct feed pressure?	Apply firm, steady feed pressure throughout the cut. Excess feed pressure will increase heat buildup and reduce tool life
6.3 How many holes can I expect the cutting tool to last?	There are many customer reports of HMT tooling lasting for hundreds of holes, however, due to the demanding nature of some portable drilling applications, this can vary widely depending on the application. HMT can take the MATLAS details of your application and provide an estimate of tool life
6.4 How can I prevent chipping or breakage	Avoid lateral movement or tilting which can cause damage to the tooling. Do not use excessive feed pressure. Steady feed pressure will mean the tool is better controlled and held at 90° to the cut. This helps prevent snagging, chipping or kick-back Try to maintain a consistent flow of swarf
6.5 Additional Notes	When reaming box or channel type section, ensure the front tip of the reamer does not collide with the far side of the material, which stops progress of the hole enlargement Drilling operations take place in a wide variety of environments, each with different risks and requirements. For this reason, safe working practices and specific risk assessments or method statements must be determined by the user. Always select and use appropriate PPE, follow correct operating procedures for all equipment, and inspect tooling before use.

Versadrive Reamers - Metric Sizes								
Diameter Range	Impact Torque - Nm				Spindle Speed - Rotary RPM			
	Sheet up to 4mm thick	Plate 5 - 12mm thick	Plate 12 - 25mm thick	Plate over 25mm thick	Structural Steel (26 m/min)	Hardened Steel (8 m/min)	Stainless Steel (12 m/min)	Non-Ferrous (48 m/min)
8–10 mm	280–340	315–380	350–430	385–475	1030–825	315–250	470–375	1880–1500
11–13 mm	300–380	335–420	370–460	410–510	750–635	230–195	345–295	1410–1200
14–16 mm	355–445	400–495	445–545	490–600	590–515	180–160	270–240	1110–980
17–19 mm	435–545	485–610	535–675	590–745	485–435	145–135	220–200	915–830
20–22 mm	465–575	520–650	580–720	640–795	415–375	125–115	190–175	780–715
23–25 mm	670–820	750–920	840–1030	925–1130	365–335	110–100	165–150	690–630
26–28 mm	750–930	840–1030	1040–1280	1150–1420	330–305	95–90	150–135	620–565
29–31 mm	930–1130	1040–1270	1290–1580	1420–1740	295–275	85–80	135–125	555–515
32–34 mm	1040–1260	1170–1420	1450–1765	1600–1940	270–245	80–70	125–110	510–450
35–37 mm	1080–1300	1210–1455	1500–1810	1650–1990	250–230	70–65	110–100	470–430
38–40 mm	1180–1420	1320–1585	1630–1960	1800–2160	230–210	65–60	100–90	430–385
41–42 mm	1260–1520	1420–1720	1740–2115	1915–2330	215–205	60–55	95–85	405–365
For Fractional Sizes See P142								