HE Bushing Reboring Guidelines

Gray Cast Iron Bushings
Instruction Manual

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see **dodgeindustrial.com** for updated instruction manuals.

WARNING: To ensure the drive is not unexpectedly started, turn off and lock-out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

WARNING: All products over 25 kg (55 lbs) are noted on the shipping package. Proper lifting practices are required for these products.

Reborable HE bushings are manufactured from cast iron having tensile strength of approximately 30 KSI.

1. Use high speed steel tools (not carbide) with the following geometry:

Nose radius:	0.005”
Side relief angle:	12°
Front relief angle:	8°
Back rake angle:	16.5°
Side rake angle:	14°

2. Use HE hub, or similar 14° taper “pot” chuck with maximum runout of .002 T.I.R.
3. Cutting speed of 80–90 SFM, Feed .008” – .016” per revolution (for cast iron ASTM Class 30 or lower). Do not use coolant or cutting fluid because acids may penetrate the anti-corrosive coating causing premature rusting. Allow part to cool between rough and finish cuts.
4. Use high speed steel broach to cut keyway.
5. Use an “A” temper raker-tooth saw at 75-feet-per-minute speed, ½”-per-minute feed. Sawslot to be within .040”/.130” wide to HE40 and .070”/.200” through HE120.
   IMPORTANT: Reborable cast iron HE bushings are furnished without sawslot. This allows reboring under best conditions to maintain concentricity. The sawslot is the final operation and is to be cut opposite the keyway as shown below. This sawslot must be made for the bushing to properly grip the shaft.

WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Dodge® nor are the responsibility of Dodge. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

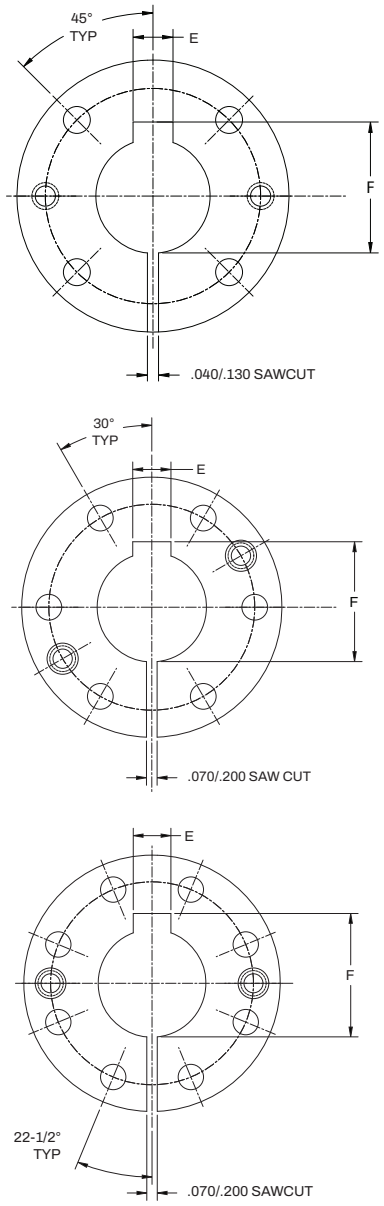

Figure 1: Orientation and Variables for HE Bushing

Table 2 - Minimum and Maximum Bore Sizes for HE Cast Iron Bushings						
Bushing	Part Number	Minimum Bore	Maximum Bore (in)		Minimum Bore (mm)	Maximum Bore (mm)
			Maximum Standard Key	Maximum Shallow Key		
HE25	207960	15/16	2-1/4	2-1/2	24	60
HE30	207961	15/16	2-3/4	3	24	75
HE35	207962	1-3/16	3-1/4	3-1/2	32	85
HE40	207963	1-15/16	3-3/4	4	50	100
HE45	207964	1-15/16	3-15/16	4-1/2	50	110
HE50	207965	2-15/16	4-1/2	5	75	125
HE60	207966	3-7/16	5-1/2	6	90	150
HE70	207967	4-7/16	6-1/2	7	120	170
HE80	207968	5-7/16	8	–	140	200
HE100	207969	6-15/16	10	–	180	250
HE120	207970	7-15/16	12	–	220	300

Table 3 - Standard Keyway Sizes						
Shaft Size (Dia)	Inch			Metric (mm)		
	Key Width (E)	Regular Keyway Depth (H)	Shallow Keyway Depth (H)	Shaft Size	Keyway Width	Keyway Depth (H)
15/16–1-1/4	1/4	1/8	–	24–30	8	3.3
1-5/16–1-3/8	5/16	3/32	–	32–38	10	3.3
1-7/16–1-3/4	3/8	3/16	–	40–42	12	3.3
1-13/16–2-1/4	1/2	1/4	–	45–50	14	3.8
2-5/16–2-3/4	5/8	5/16	3/16	55	16	4.3
2-13/16–3-1/4	3/4	3/8	1/8	60–85	18	4.4
3-5/16–3-3/4	7/8	7/16	3/16	70–75	20	4.9
3-13/16–4-1/2	1	1/2	1/4	80–85	22	5.4
4-9/16–5-1/2	1–1/4	5/8	1/4	90–95	25	5.4
5-9/16–6-1/2	1–1/2	3/4	1/4	100–110	28	6.4
6-9/16–7-1/2	1–3/4	3/4	1/4	120–130	32	7.4
7-9/16–9	2	3/4	–	135–150	36	8.4
9-1/16–11	2–1/2	7/8	–	160–170	40	9.4
11-1/16–12	3	1	–	180–200	45	10.4
–	–	–	–	220–230	50	11.4
–	–	–	–	240–260	56.1	12.4
–	–	–	–	280	63.1	12.4
–	–	–	–	300	70.1	14.4

* MM Bore and Keyway dimensions conform to ISO standard recommendation R773, for “Free” fit. ISO standard Method for Measuring Keyseat Depth.

Note: The “F” dimension from Figure 1 is calculated as follows:

For inch bores: $$F = H + \frac{Dia + \sqrt{Dia^2 - E^2}}{2} \text{ [in]}$$

For Metric bores: $$F = Dia + H \text{ [mm]}$$

Dodge Industrial, Inc.
1061 Holland Road
Simpsonville, SC 29681
+1 864 297 4800

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