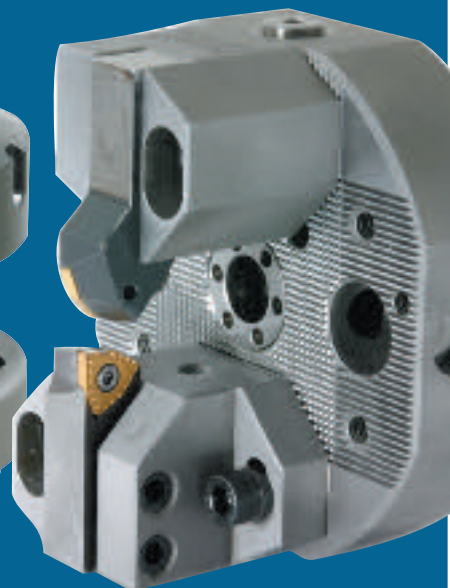
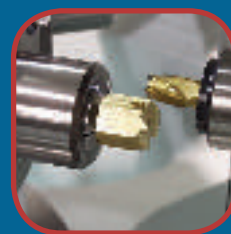
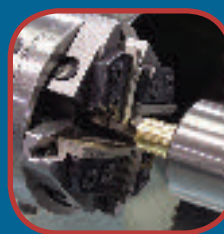


Tool Heads

12-03

**AND UNIT
ACCESSORIES**



 **Hydromat® Inc.**
precision transfer machines

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DRILL HEAD QC 83/32	83125.....	\$891.00
DRILL HEAD QC 84/40	84126.....	\$1,069.00
DRILL HEAD QC 84/46 ER50.....	84127-00-1	\$1,069.00
DRILL HEAD QC 84/20	84128.....	\$1,806.00
DRILL HEAD QC 83/16	83212.....	\$1,260.00
DRILL HEAD HSK C32/25	H92124.....	\$666.00
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DRILL HEAD HSK C40/40	H93126.....	\$737.00
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DRILL HEAD HSK C50/40	H94126.....	\$737.00
DRILL HEAD HSK C50/40	HB94126.....	\$737.00
DRILL HEAD HSK C50/50	H94127.....	\$1,046.00
DRILL HEAD HSK C50/50	HB94127	\$1,046.00

SECTION 3: DRILL HOLDERS

PART DESCRIPTION	PART #	PRICE
DRILL HOLDER QC 82/20 OD34	82223.....	\$844.00
DRILL HOLDER QC 83/25 OD40	83224.....	\$1,081.00
DRILL HOLDER QC 84/25 OD40	84224.....	\$1,707.00
DRILL HOLDER QC 84/32 OD50	84225.....	\$1,165.00
DRILL HOLDER HSK C32/20 OD34	H92223.....	\$832.00
DRILL HOLDER HSK C32/20 OD34	HB92223	\$832.00
DRILL HOLDER HSK C32/20 OD40	HB92224	UPON REQ.
DRILL HOLDER HSK C40/25 OD40	H93224.....	\$975.00
DRILL HOLDER HSK C40/25 OD40	HB93224	\$975.00
DRILL HOLDER HSK C50/32 OD50	H94225.....	\$1,177.00
DRILL HOLDER HSK C50/32 OD50	HB94225	\$1,177.00

SECTION 4: CHAMFER HEADS

PART DESCRIPTION	PART #	PRICE
CHAMFER HEAD 182/ ¼ ID34.....	5.37.005.....	\$499.00
CHAMFER HEAD 325/ 3/8 ID40.....	5.37.004.....	\$666.00
CHAMFER HEAD 335/ ½ ID40.....	5.37.003.....	\$809.00
CHAMFER HEAD 600/ ½ ID50.....	6.37.002.....	\$915.00

SECTION 5: CHAMFER HEADS, ADJUSTABLE

PART DESCRIPTION	PART #	PRICE
CHAMFER HEAD ADJ. 350/ ½ ID40 35	O.060.0483-35	\$2,521.00
CHAMFER HEAD ADJ. 375/ ½ ID40 50	O.060.0483-50	\$2,641.00
CHAMFER HEAD ADJ. 650/ ½ ID50 35	O.060.0486-35	\$2,588.00
CHAMFER HEAD ADJ. 675/ ½ ID50 50	O.060.0486-50	\$2,676.00

SECTION 6: TURNING HEADS

PART DESCRIPTION	PART #	PRICE
TURNING HEAD QC 82-63/8	82933-952	\$2,507.00
TURNING HEAD QC 83-78/16	83944-952	\$3,185.00
TURNING HEAD QC 83-103/16	83945-127	\$3,185.00
TURNING HEAD QC 84-103/16	84945-127	\$3,326.00
TURNING HEAD QC 84-128/20	84946-127	\$3,326.00
TURNING HEAD HSK C32-78	H92924-952	\$4,514.00
TURNING HEAD HSK C32-78	HB92924-952	\$4,514.00
TURNING HEAD HSK C40-103/16	H93925-127	\$3,683.00
TURNING HEAD HSK C40-103/16	HB93925-127	\$3,683.00
TURNING HEAD HSK C40-128/20	HB93926-127	\$4,304.00
TURNING HEAD HSK C40-103/16	H93945-127	\$4,325.00
TURNING HEAD HSK C40-103/16	HB93945-127	\$5,181.00
TURNING HEAD HSK C40-128/20	HB93946-127	\$5,502.00
TURNING HEAD HSK C40-128/32	HB93948-127	UPON REQ.
TURNING HEAD HSK C50-128/20	H94926-127	\$4,039.00
TURNING HEAD HSK C50-128/20	HB94926-127	\$4,039.00
TURNING HEAD HSK C50-128/20	H94946-127	\$4,420.00
TURNING HEAD HSK C50-128/20	HB94946-127	\$4,420.00

SECTION 7: MILLING HEADS

PART DESCRIPTION	PART #	PRICE
MILLING HEAD 26-2/4 FQ	5.19.035-2	\$7,640.00
MILLING HEAD 26-2/4 FQ	5.19.035-4	\$7,640.00
MILLING HEAD 26-1/20 FQ	5.19.036-1	\$8,632.00
MILLING HEAD 26-1/4 FQ	5.19.036-2	\$8,632.00
MILLING HEAD 26-1.4/5 FQ	5.19.038-2	\$7,640.00
MILLING HEAD 26-1.2/4 FQ	5.19.078-2	\$5,088.00
MILLING HEAD 26-2/6 FQ	5.19.047-2	\$11,251.00
MILLING HEAD 36-1.5/5 FQ-T	6.19.004-2	\$5,276.00
MILLING HEAD 36-1.5/25 FQ-T	6.19.004-4	\$8,140.00
MILLING HEAD 36-1.3/6 FQ	6.19.010-2	\$6,445.00
MILLING HEAD 36-1/5.5 FQ	6.19.011-2	\$6,425.00

SECTION 8: CROSS DRILL HEAD ASSY.

PART DESCRIPTION	PART #	PRICE
CROSS DRILLING HEAD 261/11		UPON REQ.
CROSS DRILLING HEAD 262/11		UPON REQ.
CROSS DRILLING HEAD 263/11		UPON REQ.
CROSS DRILLING HEAD 264/11		UPON REQ.
CROSS DRILLING HEAD 261-20/QC 83/16	5.20.0102-1	\$12,203.00
CROSS DRILLING HEAD 262-20/QC 83/16	5.20.0102-2	\$18,874.00
CROSS DRILLING HEAD 361-20/QC 83/16	5.20.058-1	\$13,299.00
CROSS DRILLING HEAD 362-20/QC 83/16	5.20.057-2	\$17,013.00

SECTION 9: CROSS DRILLING HEADS

PART DESCRIPTION	PART #	PRICE
CROSS DRILLING HEAD 20-10/11	5.20.072-7	\$5,006.00
CROSS DRILLING HEAD 20-20/11	5.20.069-3	\$8,225.00
CROSS DRILLING HEAD 20-10/11 EH	5.20.068-2	\$6,723.00
CROSS DRILLING HEAD 20-20/11 EH	5.20.073-7	\$8,586.00
CROSS DRILLING HEAD 30-20/16	5.20.070	\$7,060.00
CROSS DRILLING HEAD 30-20/16 EH	5.20.075	\$9,863.00

SECTION 10: BLANK HEADS

PART DESCRIPTION	PART #	PRICE
BLANK HEAD QC 82-70	82701	\$618.00
BLANK HEAD QC 82/40	82702	\$360.00
BLANK HEAD QC 83-100	83701	\$690.00
BLANK HEAD QC 83-50	83702	\$542.00
BLANK HEAD QC 84-120	84701	\$772.00
BLANK HEAD QC 84-64	84702	\$644.00
BLANK HEAD HSK C-32	HC032HF071080	\$1,093.00
BLANK HEAD HSK C-32	HBC032HF071080	UPON REQ.
BLANK HEAD HSK C-40	HC040HF081100	\$1,129.00
BLANK HEAD HSK C-40	HBC040HF081100	\$1,129.00
BLANK HEAD HSK C-40	HC040HF121100	\$1,153.00
BLANK HEAD HSK C-40	HBC040HF121100	\$1,153.00
BLANK HEAD HSK C-50	HC050HF101100	\$1,104.00
BLANK HEAD HSK C-50	HBC050HF101100	\$1,104.00
BLANK HEAD HSK C-50	HC050HF141100	\$1,147.00
BLANK HEAD HSK C-50	HBC050HF141100	\$1,147.00

SECTION 11: MISC. ITEMS

PART DESCRIPTION	PART #	PRICE
THREADING UNIT 20/50 LEAD SCREW	5.21.017mm 5.21.018in.	\$428.00
THREADING UNIT 30/60, 45/60 & 80 LEAD SCREW	5.21.015mm 5.21.016in.	\$809.00
THREADING UNIT 35/120 & 45/120 LEAD SCREW	5.21.019mm 5.21.020in.	\$809.00
PCM ADAPTER – VE30/60 QC to EIE 36/100	O.060.1106	\$1,213.00

SECTION 12: BALANCING RINGS

BALANCING RINGS (2 PER SET) – DRILL HEAD

DRILL HEAD		RING		BALANCING		
PART #	RING TYPE	PART #	ID	OD	CAPAC. - (gmm)	PRICE
HB92124	FWR 325	7490.32500	32.5	40.5	56	\$UPON REQ.
HB93125	FWR 405	7490.40500	40.5	48.5	80	\$117.00
HB93126	FWR 505	7490.50500	50.5	60.5	170	\$121.00
HB94126	FWR 505	7490.50500	50.5	60.5	170	\$121.00
HB94127	FWR 700	8020.12200	70	80	474	\$233.00

BALANCING RINGS (2 PER SET) – DRILL HOLDER

DRILL HOLDER		RING		BALANCING		
PART #	RING TYPE	PART #	ID	OD	CAPAC. - (gmm)	PRICE
HB92223	FWR 505	7490.50500	50.5	60.5	170	\$121.00
HB92224	FWR 505	7490.50500	50.5	60.5	170	\$121.00
HB93224	FWR 700	8020.12200	70	80	474	\$233.00
HB94225	FWR 700	8020.12200	70	80	474	\$233.00

BALANCING RINGS (2 PER SET) – TURNING HEAD

TURNING HEAD		RING		BALANCING		
PART #	RING TYPE	PART #	ID	OD	CAPAC. - (gmm)	PRICE
HB92924-952	FWR 700	8020.12200	70	80	474	\$233.00
HB93925-127	FWR 950	8020.12300	95	105	816	\$263.00
HB93945-127	FWR 950	8020.12300	95	105	816	\$263.00
HB93926-127	FWR 1220	8020.12400	122	130	1,250	\$279.00
HB93946-127	FWR 1220	8020.12400	122	130	1,250	\$279.00
HB94926-127	FWR 1220	8020.12400	122	130	1,250	\$279.00
HB94946-127	FWR 1220	8020.12400	122	130	1,250	\$279.00

BALANCING RINGS (2 PER SET) – BLANK HEAD

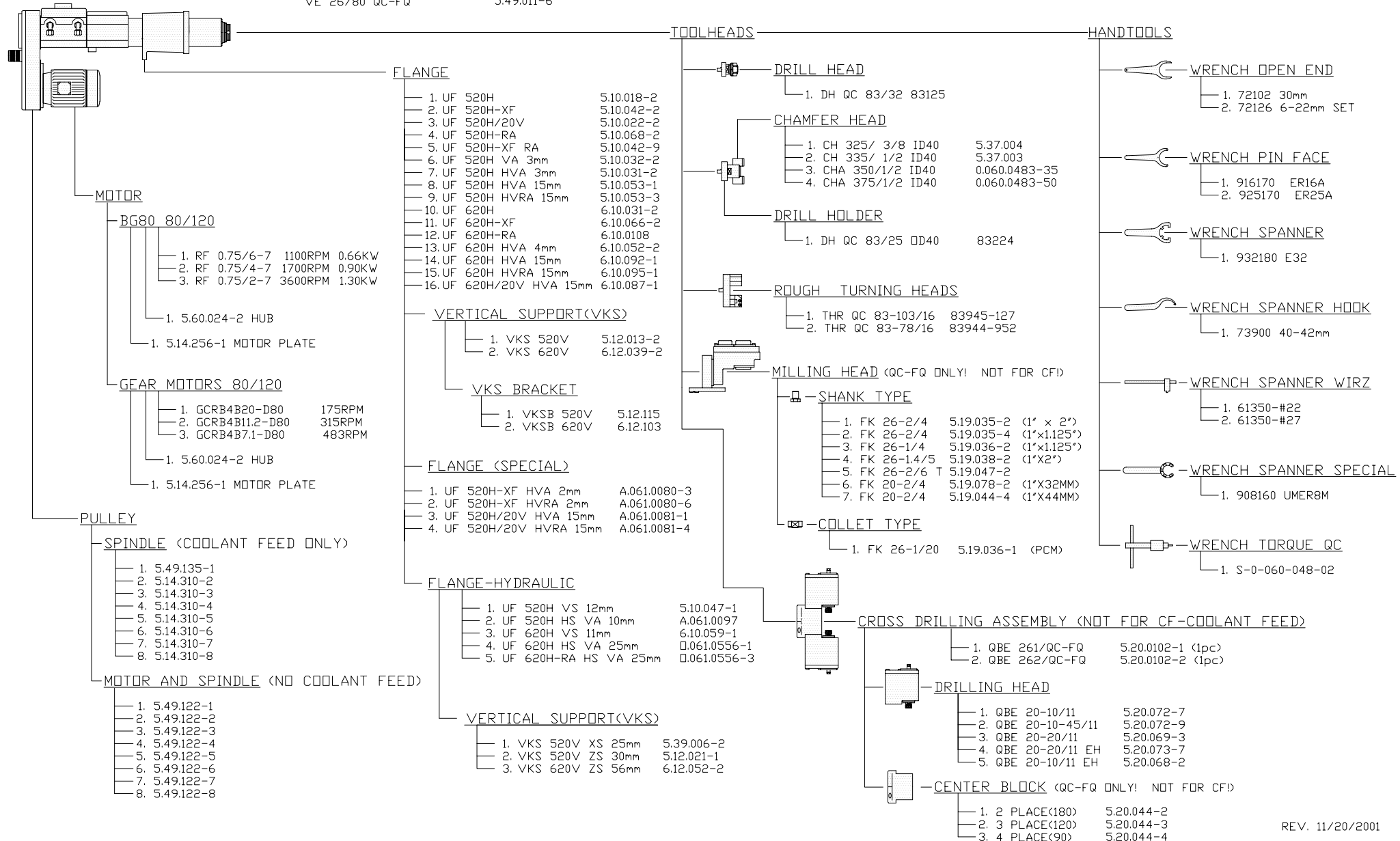
BLANK HEAD		RING		BALANCING		
PART #	RING TYPE	PART #	ID	OD	CAPAC. - (gmm)	PRICE
HBC32HF071080	FWR 505	7490.50500	50.5	60.5	170	\$121.00
HBC40HF081100	FWR 700	8020.12200	70	80	474	\$233.00
HBC50HF101100	FWR 950	8020.12300	95	105	816	\$263.00
HBC40HF121100	FWR 950	8020.12300	95	105	816	\$263.00
HBC50HF141100	FWR 1220	8020.12400	122	130	1,250	\$279.00

SECTION 1

TOOLSPINDLE APPLICATION TREES

TOOLSPINDLE UNIT VE 26/80 QC APPLICATION TREE

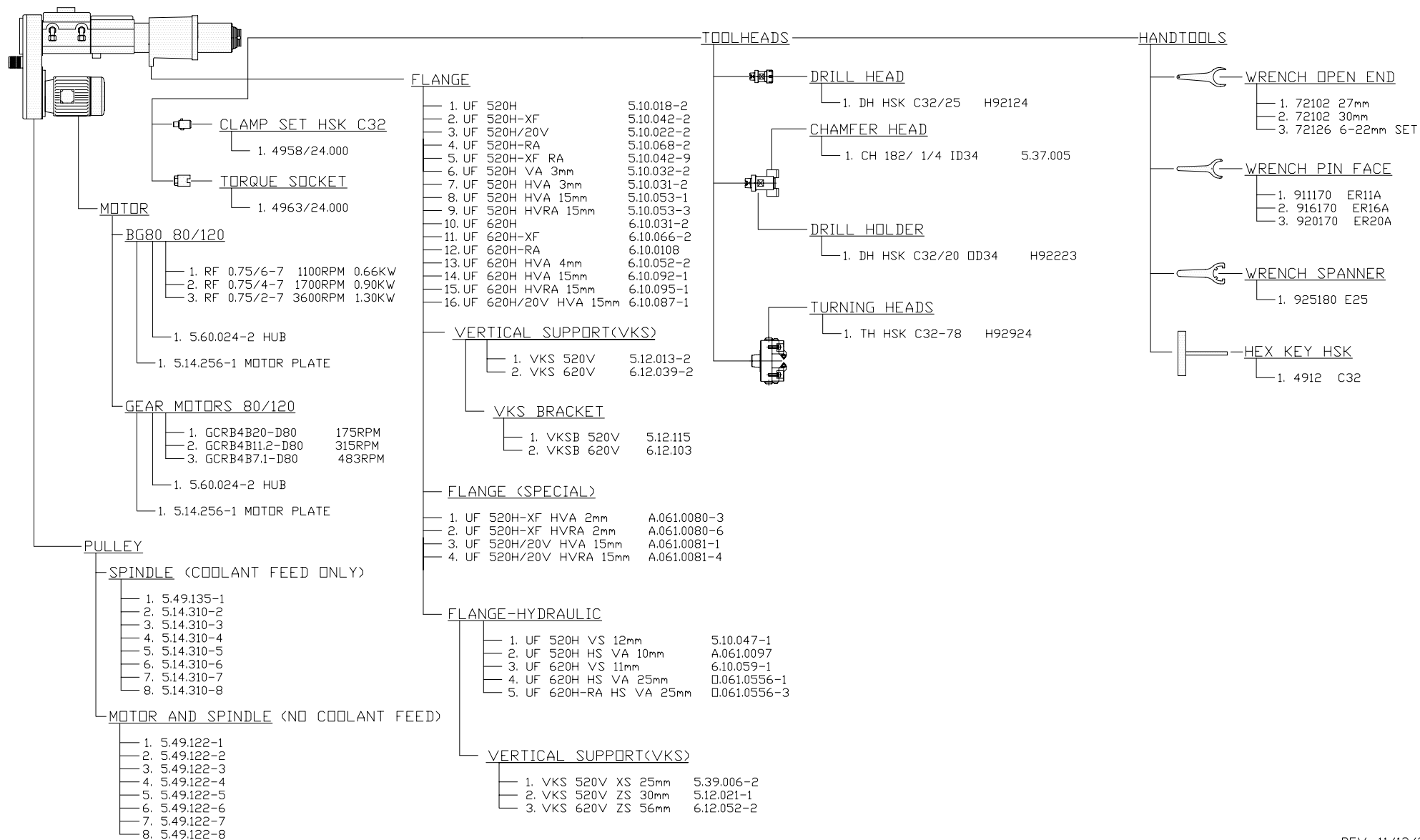
VE 26/80 QC	5.49.001-2	VE 26/80 QC-SERVO	5.49.007-2	VE 26/80 QC	5.60.007-4	VE 26/80 QC-SERVO	5.60.010-4
VE 26/80 QC-CF	5.49.001-4	VE 26/80 QC	5.49.008-2	VE 26/80 QC-CF	5.60.008-4	VE 26/80 QC-CF-SERVO	5.60.011-4
VE 26/80 QC-FQ	5.49.003-2	VE 26/80 QC-CF	5.49.008-4	VE 26/80 QC-FQ	5.60.009-4	VE 26/80 QC-FQ-SERVO	5.60.005-6
VE 26/80 QC-SERVO	5.49.004-2	VE 26/80 QC-FQ-SERVO	5.49.009-8	VE 26/80 QC-FQ-CF	5.60.018-2	VE 26/80 QC-CF-FQ-SERVO	5.60.019-2
VE 26/80 QC-CF-SERVO	5.49.004-4	VE 26/80 QC-FQ-CF-SERVO	5.49.009-10				
VE 26/80 QC	5.49.005-2	VE 26/80 QC-SERVO	5.49.010-2				
VE 26/80 QC-FQ	5.49.006-2	VE 26/80 QC-CF-SERVO	5.49.010-4				
		VE 26/80 QC-FQ	5.49.011-6				



TOOLSPINDLE UNIT VE 26/80 HSK APPLICATION TREE

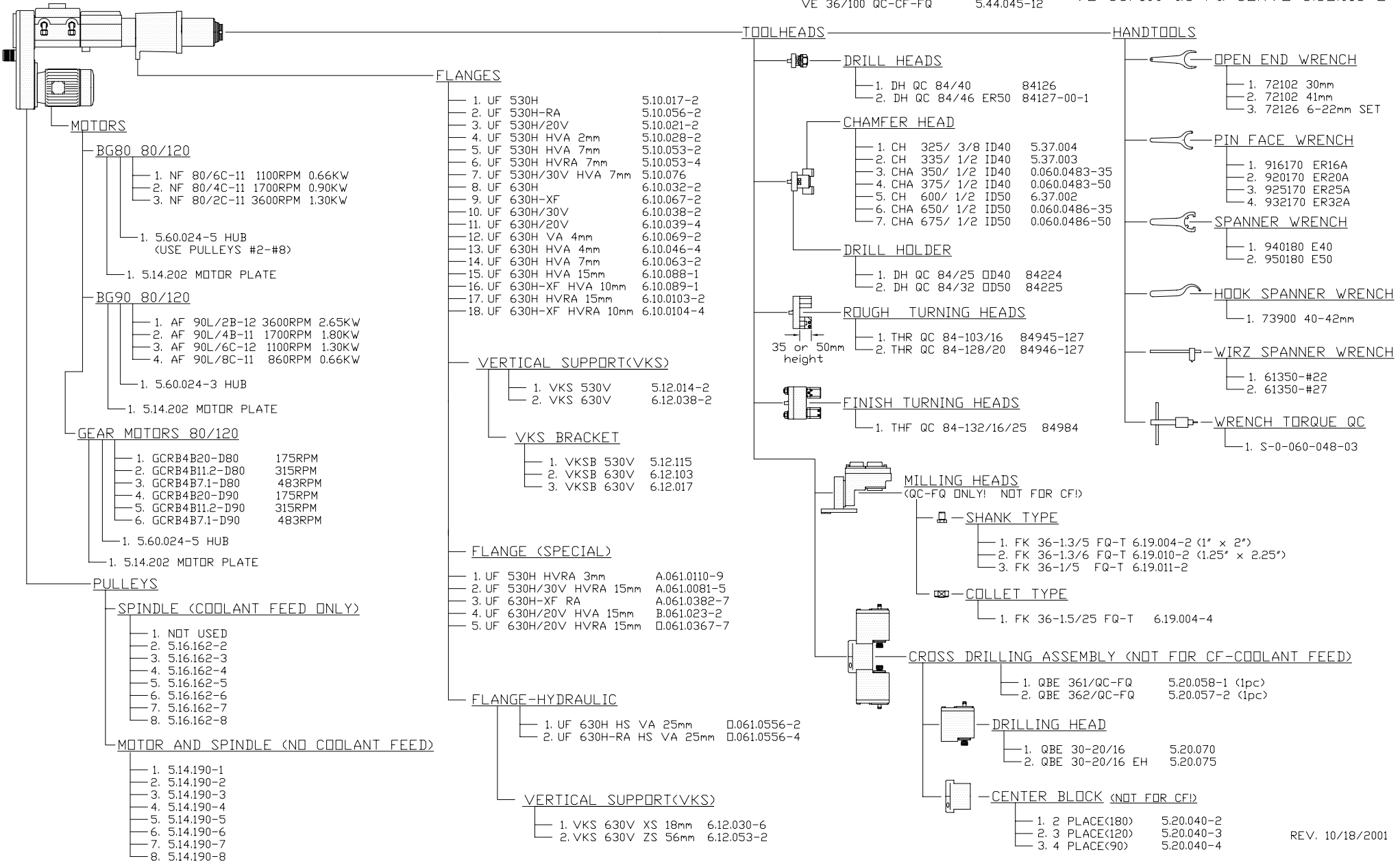
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 VE 26/80 HSK32 CF 5.60.008-2
 VE 26/80 HSK32 FQ 5.60.009-2
 VE 26/80 HSK32 CF-FQ-SERVO 5.60.008-2

VE 26/80 HSK32 5.60.050-2
 VE 26/80 HSK32 CF 5.60.060-2
 VE 26/80 HSK32 FQ 5.60.052-2
 CNC 26/80 HSK32 5.60.051-2
 CNC 26/80 HSK32 CF 5.60.061-2
 CNC 26/80 HSK32 FQ 5.60.054-2



TOOLSPINDLE UNIT VE 36/60-100 QC APPLICATION TREE

VE 36/60 QC	5.44.009-2	VE 36/60 QC-CF-GB-FQ	5.44.015-4	VE 36/100 QC-T	5.44.029-2	VE 36/100 QC-GB	5.44.041-6	VE 36/100 QC	5.62.005-2
VE 36/60 QC-CF	5.44.009-4	VE 36/60 QC-FQ-SERVO	5.44.017-2	VE 36/100 QC-CF-T	5.44.029-4	VE 36/100 QC	5.44.043-8	VE 36/100 QC-CF	5.62.011-2
VE 36/60 QC-FQ	5.44.010-2	VE 36/60 QC-FQ	5.44.022-2	VE 36/100 QC-T-SERVO	5.44.030-2	VE 36/100 QC-CF	5.44.043-10	VE 36/100 QC-FQ	5.62.008-4
VE 36/60 QC-CF-FQ	5.44.010-4	VE 36/60 QC-CF-FQ	5.44.022-4	VE 36/100 QC-CF-T-SERVO	5.44.030-4	VE 36/100 QC-SERVO	5.44.044-2	VE 36/100 QC-CF-FQ	5.62.005-10
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VE 36/60 QC-CF-GB	5.44.013-4	VE 36/60 QC	5.44.028-2	VE 36/100 QC-CF-SERVO	5.44.031-4	VE 36/100 QC-CF-SERVO	5.44.044-4	VE 36/100 QC-SERVO	5.62.005-6
VE 36/60 QC-GB-FQ	5.44.015-2	VE 36/60 QC-CF	5.44.028-4	VE 36/100 QC	5.44.034-2	VE 36/100 QC-CF-SERVO	5.44.044-14	VE 36/100 QC-CF-SERVO	5.62.012-2
				VE 36/100 QC-SERVO	5.44.035-2	VE 36/100 QC-FQ	5.44.045-6	VE 36/100 QC-FQ-SERVO	5.62.013-2
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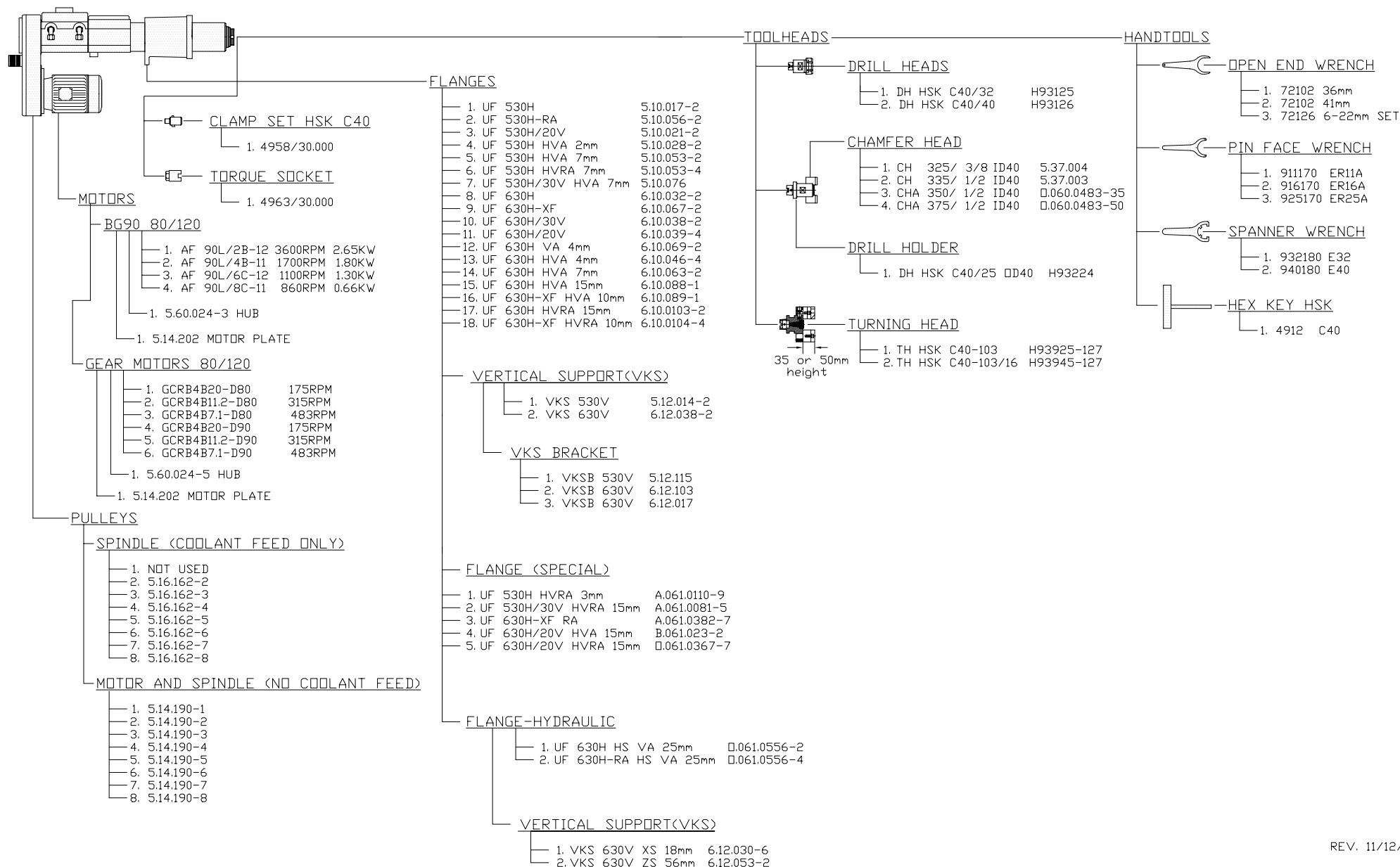


TOOLSPINDLE UNIT VE 36/100 HSK APPLICATION TREE

VE 36/100 HSK40 5.62.005-4
 VE 36/100 HSK40 CF 5.62.005-8
 CNC 36/100 HSK40 5.62.028-2
 CNC 36/100 HSK40 CF 5.62.036-2

VE 36/100 HSK40 5.62.050-2
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 VE 36/100 HSK40 GB 5.62.041-4
 VE 36/100 HSK40 FQ GB 5.62.015-2

CNC 36/100 HSK40 5.62.051-4
 CNC 36/100 HSK40 CF FQ 5.62.055-2
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 CNC 36/100 HSK40 GB 5.62.041-2
 CNC 36/100 HSK40 FQ GB 5.62.015-8



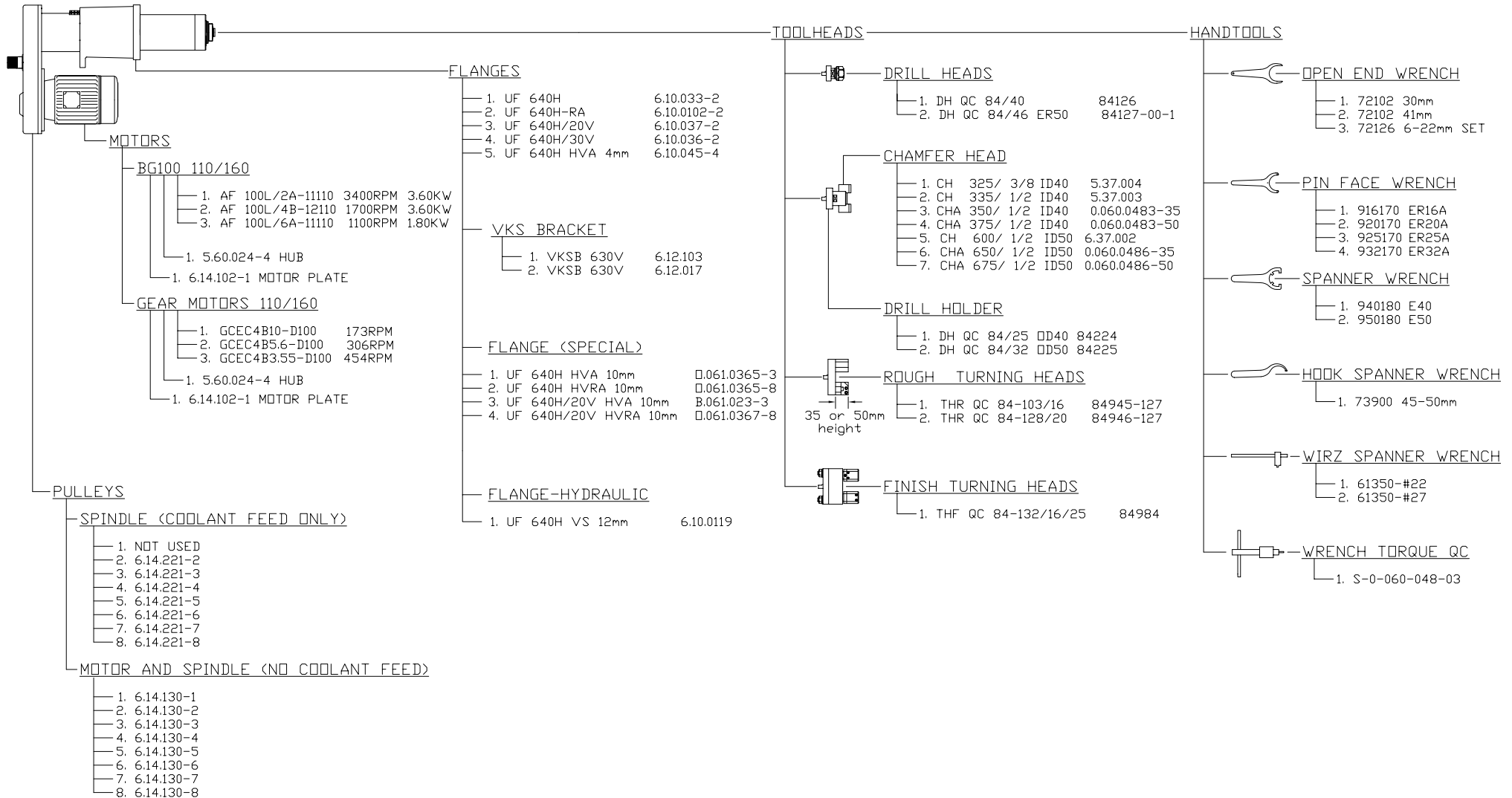
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VE 46/120 T 6.44.004-2

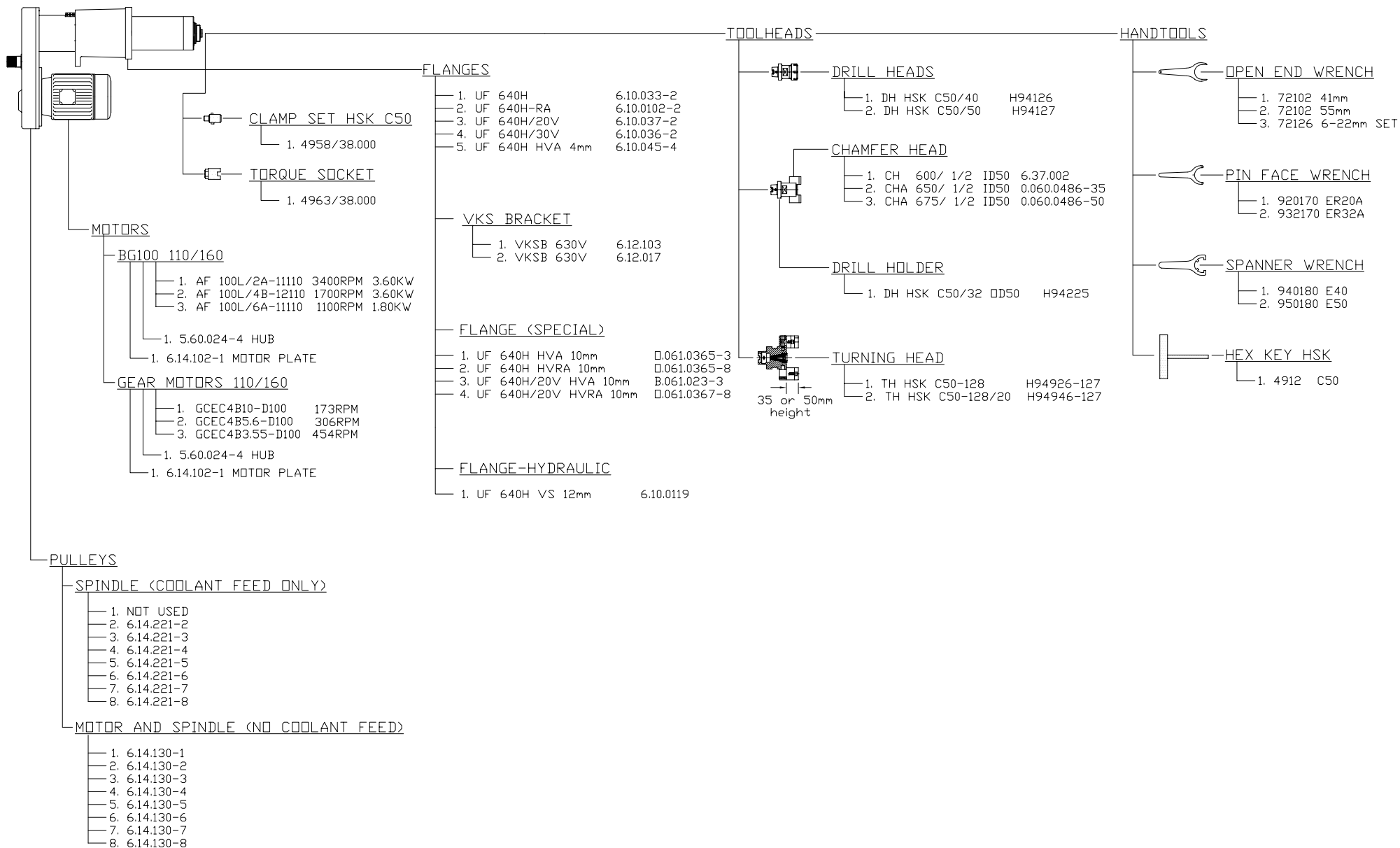
VE 46/120 T-CF 6.44.004-4



TOOLSPINDLE UNIT VE 46/120 HSK APPLICATION TREE

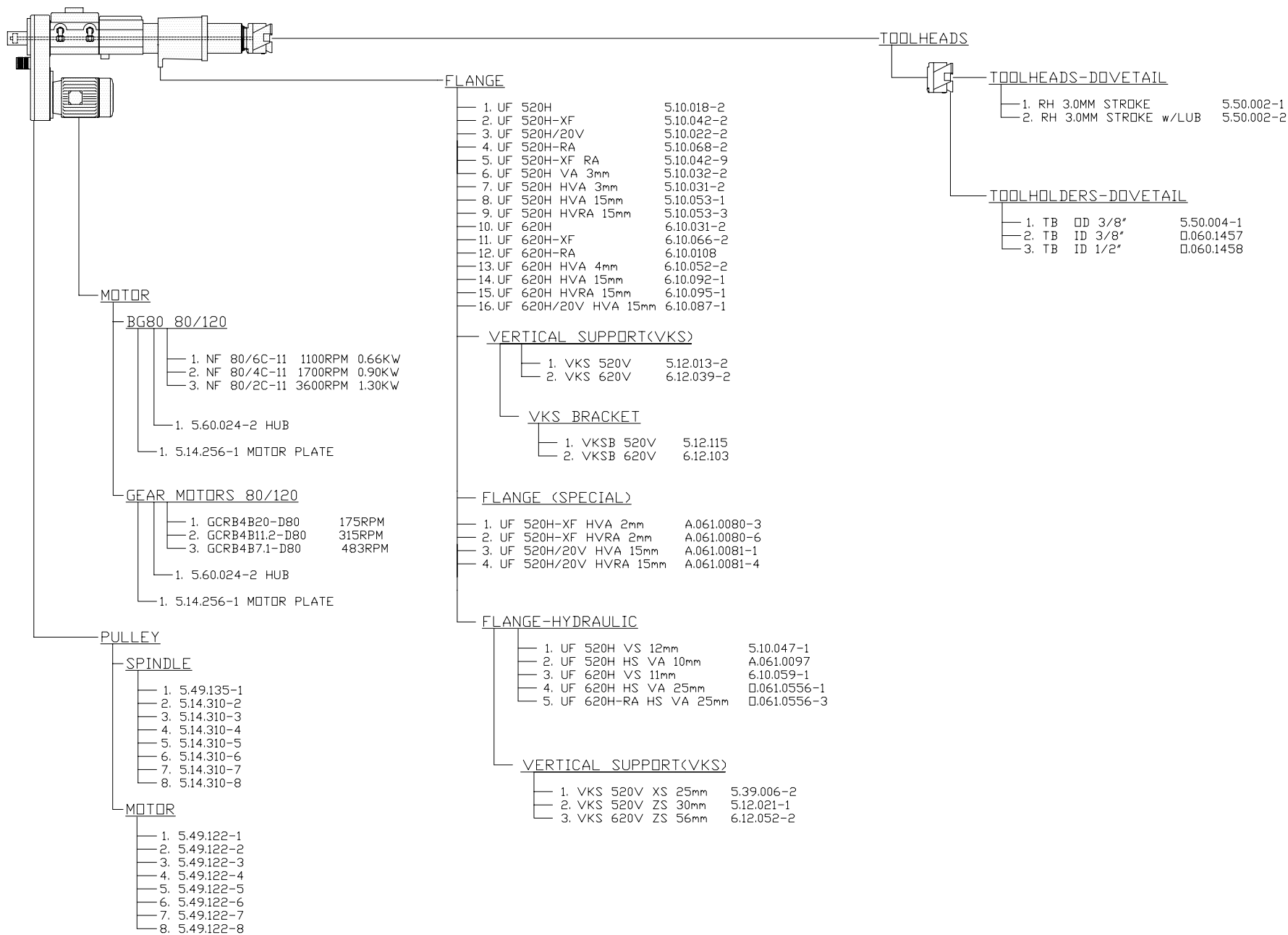
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CNC 46/120 HSK50 CF

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RECESS AND RECESS TURN UNIT 26/80 APPLICATION TREE

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EIE 26/80	5.50.006-4	EIE 26/80 w/LUB	5.50.019-2				



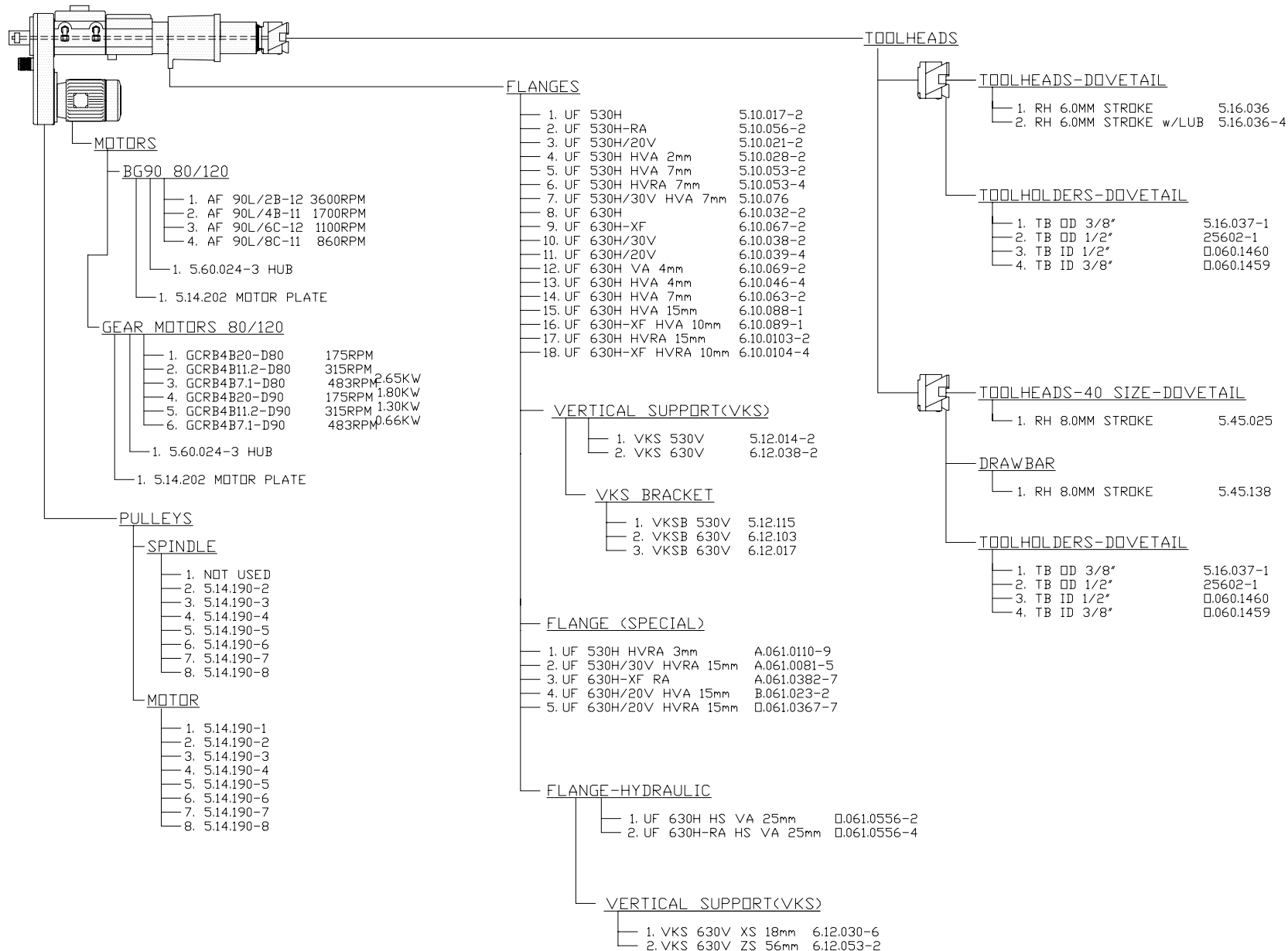
RECESS AND RECESS TURN UNIT VE 36/60-100 APPLICATION TREE

EIE 36/60 FQ-T 5.45.004-2
 EIE 36/60 FQ 5.45.005-2
 EIE 36/100 T 5.45.006-2
 EIE 36/100 5.45.008-2

EIE 36/100 5.45.009-2
 EIE 36/100 5.45.010-2
 EIE 36/100 5.45.010-4
 EIE 36/100 T 5.45.011-2
 EIE 36/100 T 5.45.012-2

EIE 36/100 5.45.012-6
 EIE 36/100 SERVO 5.45.014-2
 EIE 36/100 NC/LUB 5.45.014-6
 EIE 36/100 w/LUB 5.45.018-2
 EIE 36/100 w/LUB 5.62.014-2
 EIE 36/100 w/LUB 5.62.063-2
 EIE 36/100 NC/LUB 5.62.019-2

HDE 36/60 FQ-T 5.48.001-2
 HDE 36/100 FQ-T 5.48.002-2
 HDE 36/100 T 5.48.004-2
 HDE 36/100 FQ-T 5.48.005-2
 HDE 36/100 T-40 HEAD 5.48.006-4
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 HDE 36/100 T-w/LUB 5.48.009-2
 HDE 36/100 T-w/LUB 5.62.025-2



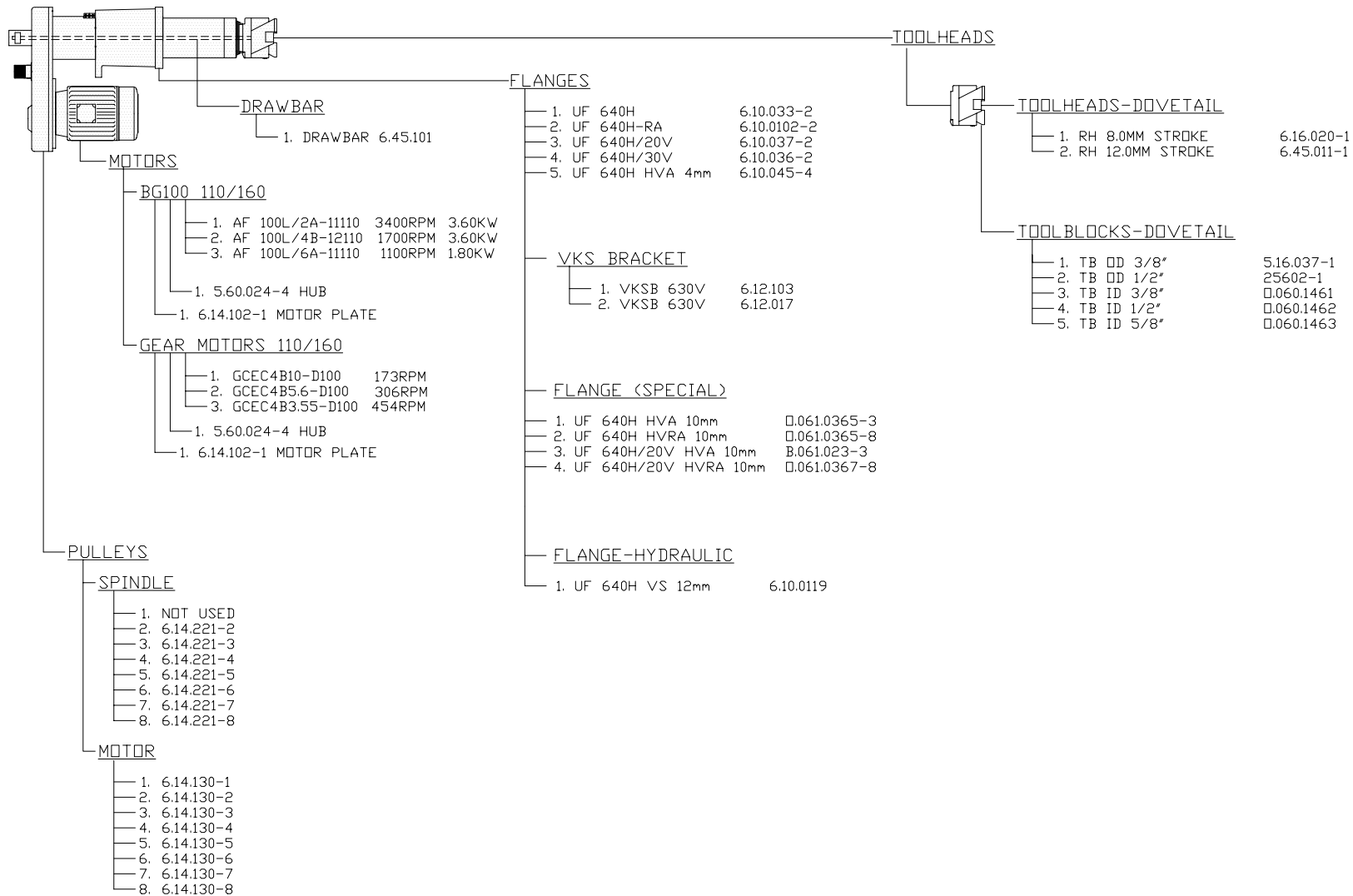
RECESS UNIT 46/120 APPLICATION TREE

EIE 46/120 DOVETAIL

6.45.003-2

EIE 46/120 DOVETAIL w/LUB

6.45.008-2



THREADING UNIT GWE 20/50 QC APPLICATION TREE

GWE 20/50 QC

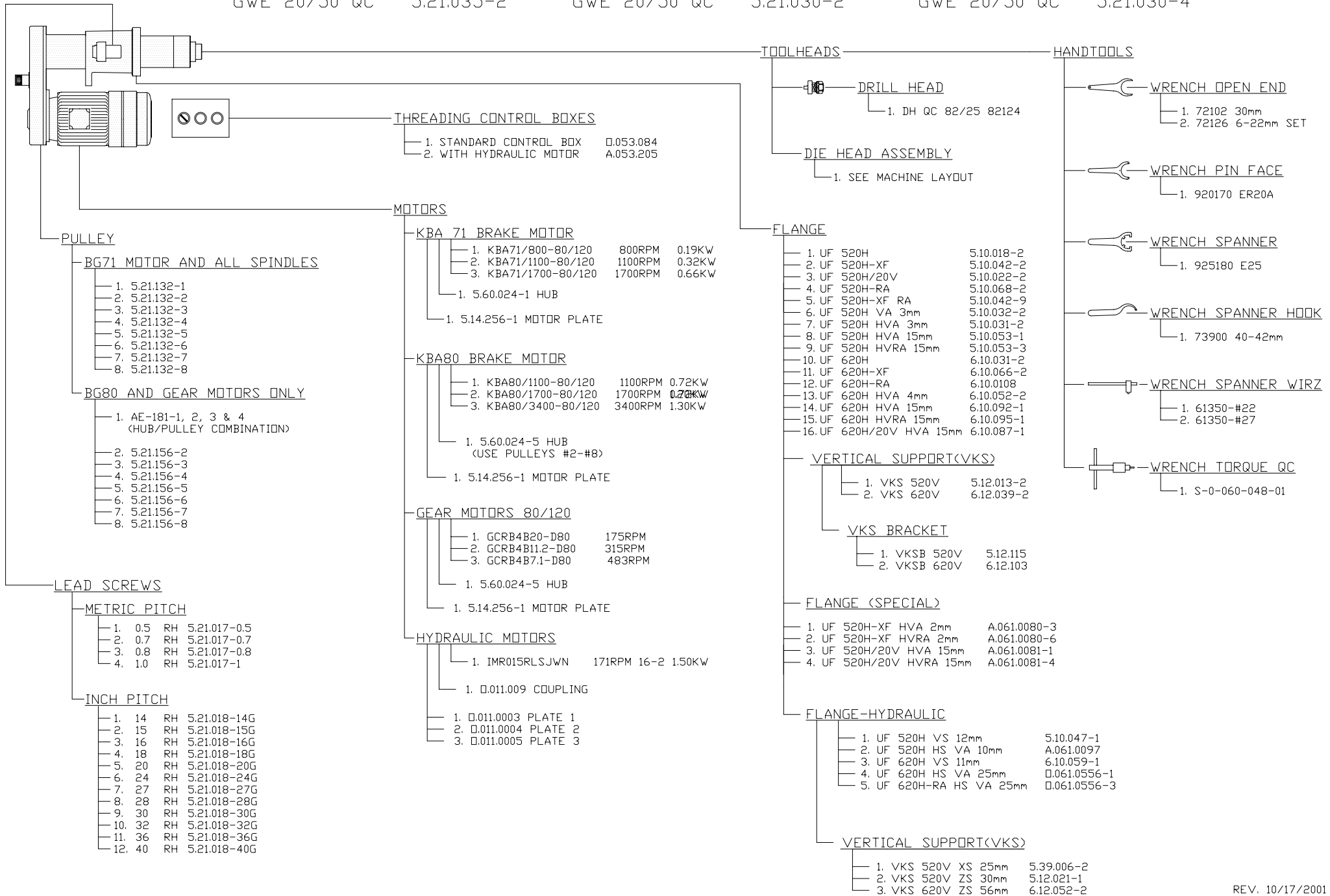
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GWE 20/50 QC

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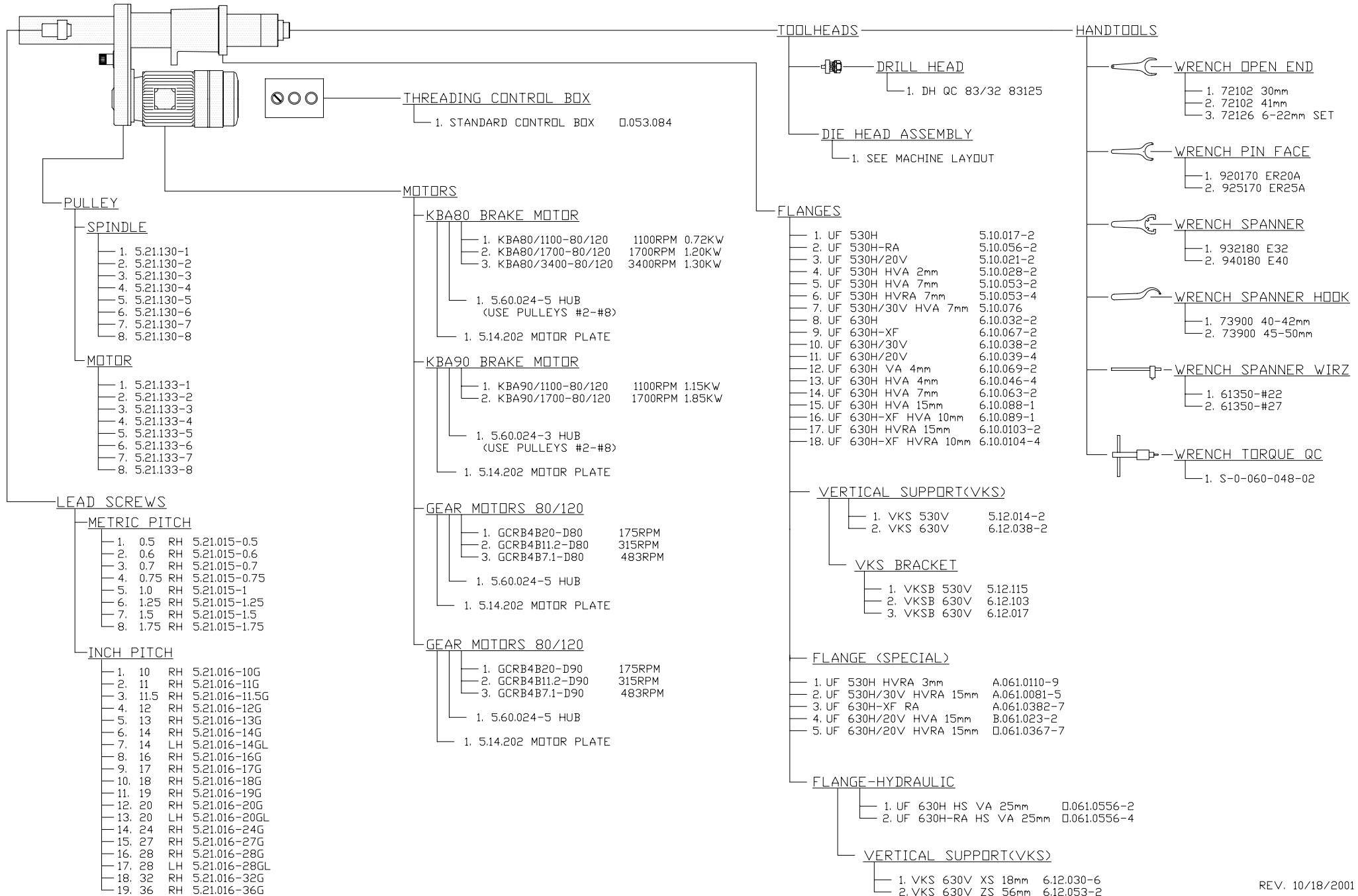
GWE 20/50 QC

5.21.030-4



THREADING UNIT GWE 35/60 QC QCLS APPLICATION TREE

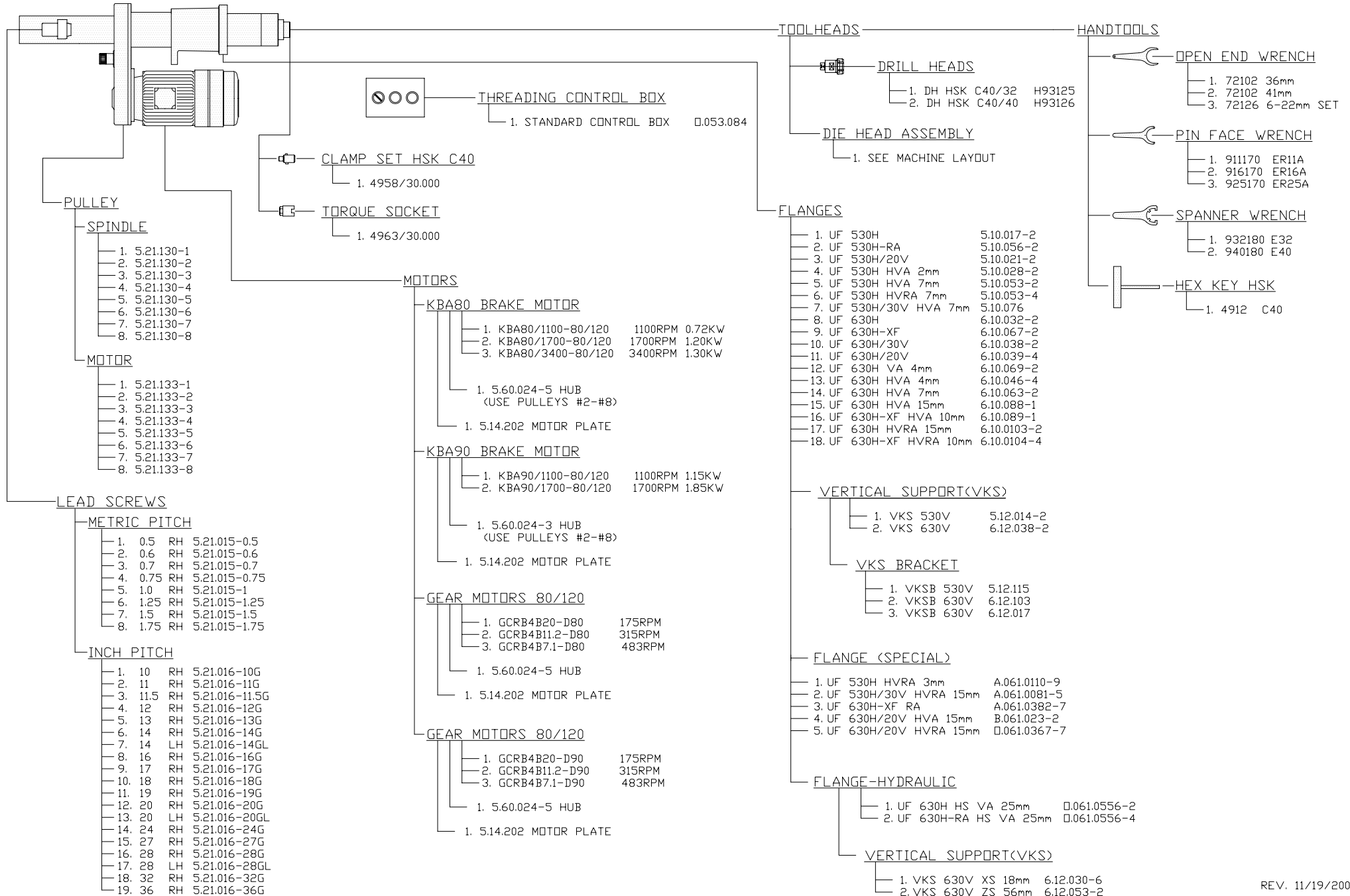
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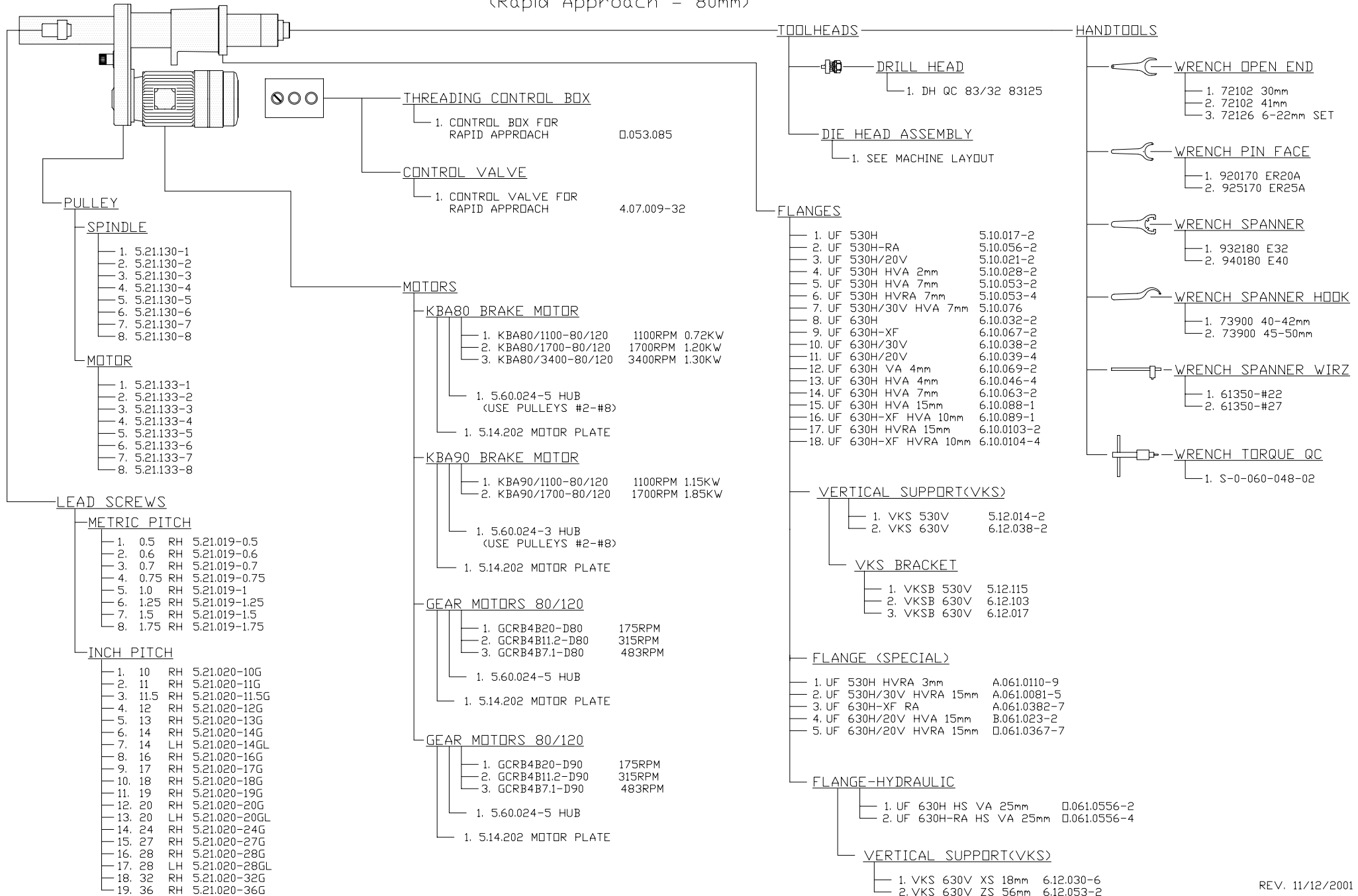
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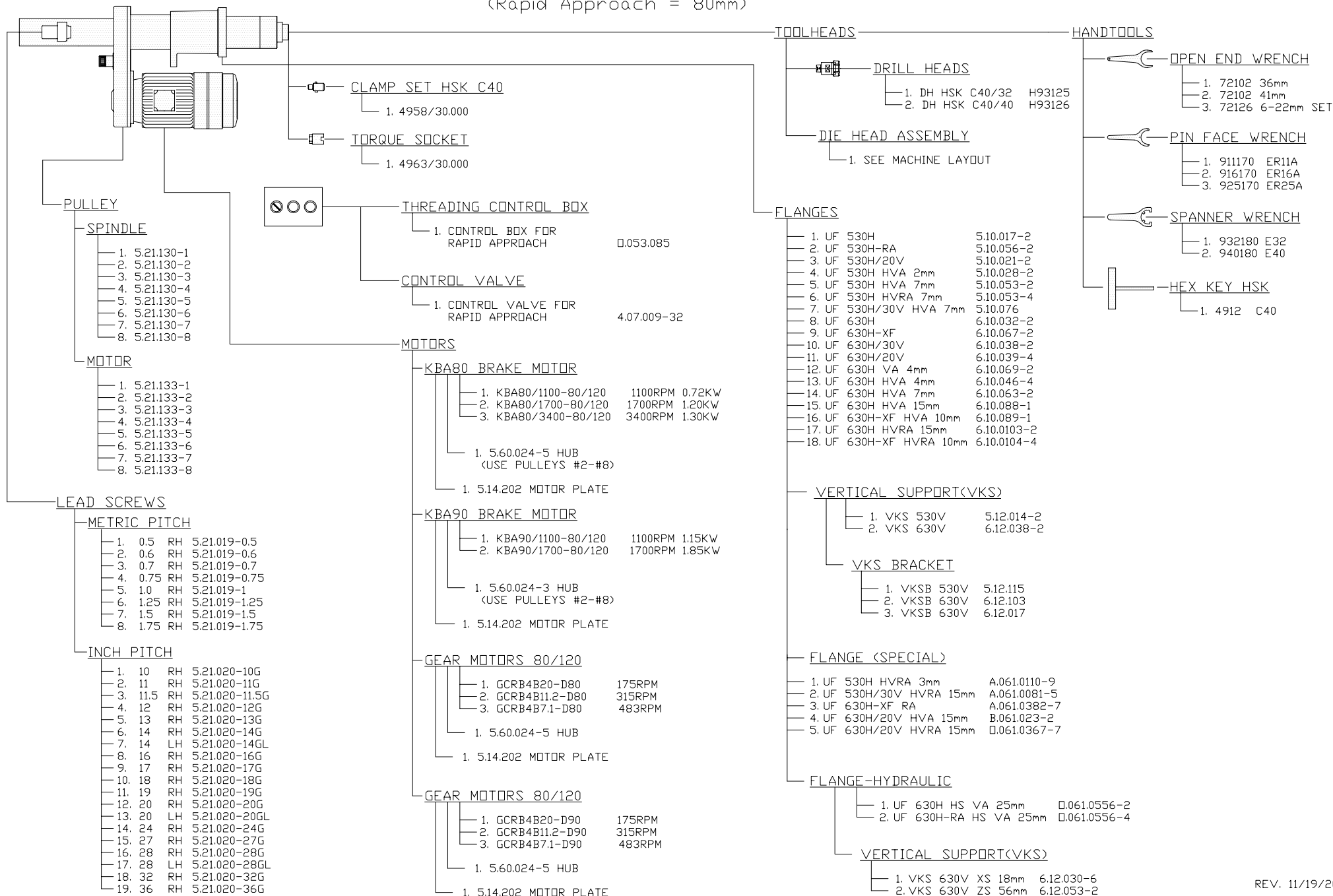
THREADING UNIT GWE 35/120 QC RA QCLS APPLICATION TREE

GWE 35/120 QC-QCLS-RA 5.21.032-2
(Rapid Approach = 80mm)



THREADING UNIT GWE 35/120 HSK RA QCLS APPLICATION TREE

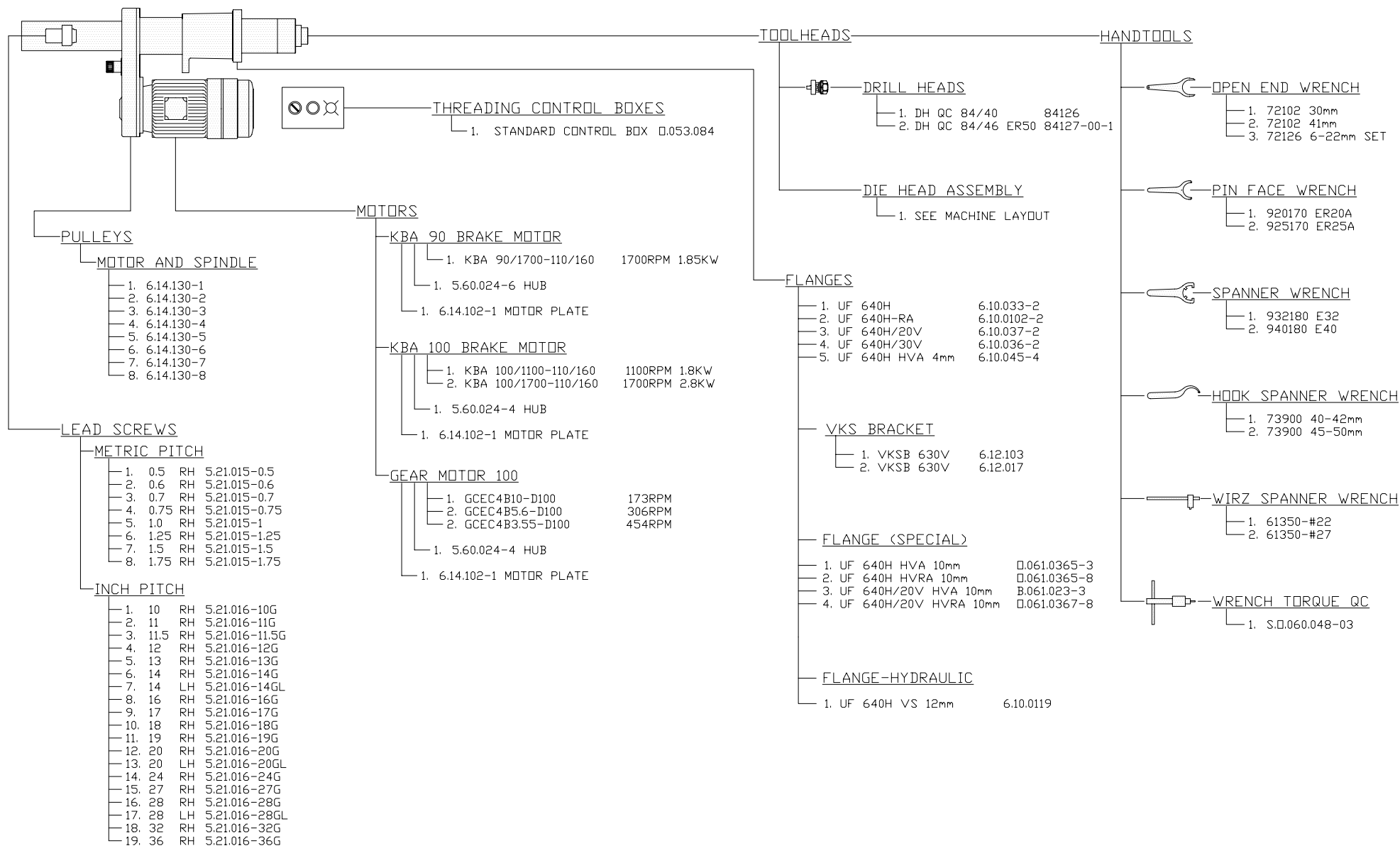
GWE 35/120 HSK40-QCLS-RA 5.21.032-6
(Rapid Approach = 80mm)



THREADING UNIT GWE 45/60 QC-QCLS APPLICATION TREE

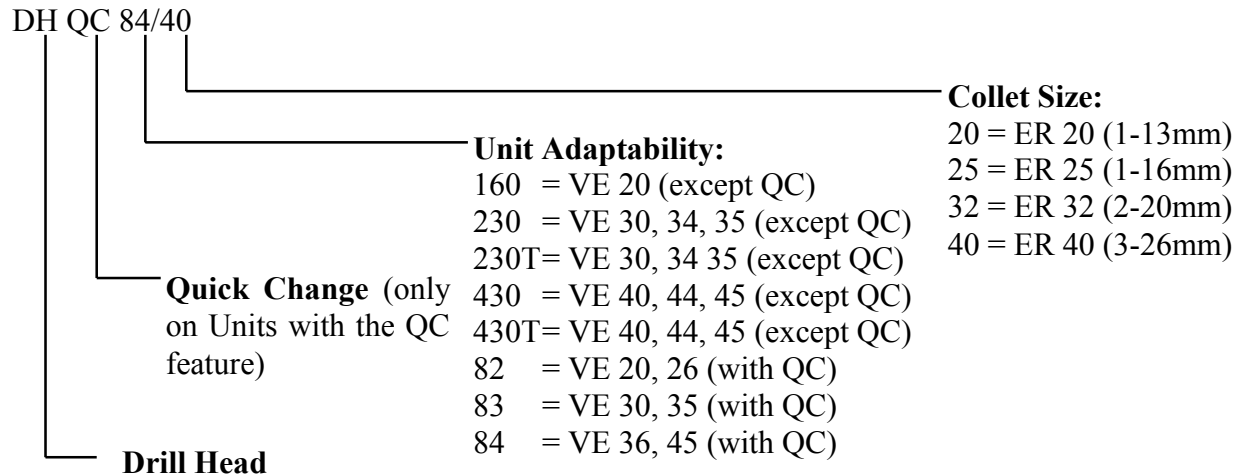
GWE 45/60 QC-QCLS 6.21.009-2

GWE 45/60 QC-GB-QCLS 6.21.010-2

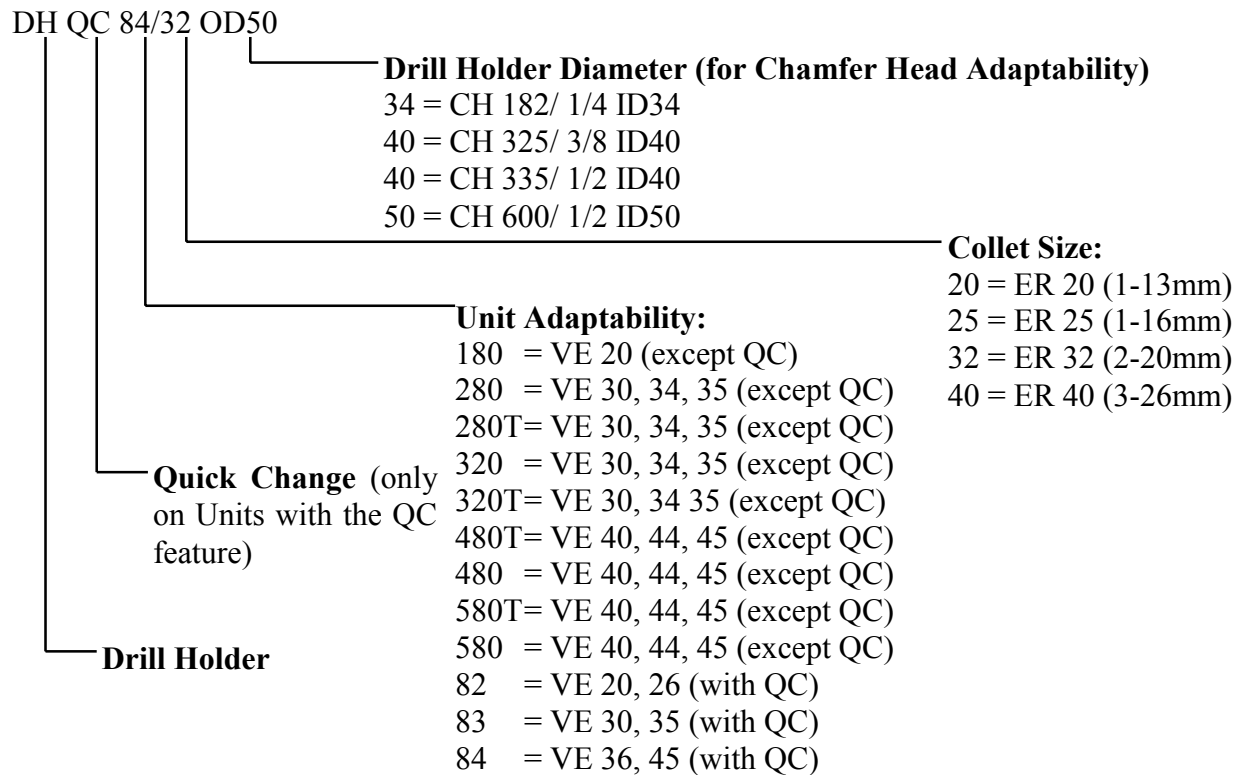


TOOL HEAD DESIGNATION GUIDE

1. DRILL HEADS



2. DRILL HOLDERS



3. CHAMFER HEADS

CH 600/ 1/2 ID50

Chamfer Head Inside Dia. (for Drill Holder Adaptability)

34 = DH 180/20 OD34

34 = DH 280T/20 OD34

34 = DH 280/20 OD34

34 = DH QC 82/20 OD34

40 = DH 320T/25 OD40

40 = DH 480T/20 OD40

40 = DH 480/20 OD40

40 = DH QC 83/25 OD40

50 = DH 580T/32 OD50

50 = DH 580/32 OD50

50 = DH QC 84/32 OD50

Tool Holder :

1/4 = 1/4" Maximum

3/8 = 3/8" Maximum

1/2 = 1/2" Maximum)

Drill Holder Model No. :

182 = WZ 182

325 = WZ 325

335 = WZ 335

600 = WZ 600

Chamfer Head

4. DRILL CHAMFER HEADS

DCA 180/ 1/4 / 20

Collet Type:

20 = ER 20 (1-13mm)

25 = ER25 (1-16mm)

32 = ER32 (2-20mm)

40 = ER40 (3-26mm)

Tool Holder :

1/4 = 1/4" Maximum

3/8 = 3/8" Maximum

1/2 = 1/2" Maximum)

Unit Adaptability:

180 = VE 20 (except QC)

280 = VE 30, 34, 35 (except QC)

280T= VE 30, 34, 35 (except QC)

320 = VE 30, 34, 35 (except QC)

320T= VE 30, 34 35 (except QC)

480T= VE 40, 44, 45 (except QC)

480 = VE 40, 44, 45 (except QC)

580T= VE 40, 44, 45 (except QC)

580 = VE 40, 44, 45 (except QC)

82 = VE 20, 26 (with QC)

83 = VE 30, 35 (with QC)

84 = VE 36, 45 (with QC)

Drill Chamfer Head

The diagram shows three main options on the left: **THR**, **QC**, and **83-103/16**. Lines connect these options to specific specifications on the right:

- THR** connects to **Turning Head Rough**.
- QC** connects to **Quick Change (only on Units with the QC feature)**.
- 83-103/16** connects to a group of specifications including **Unit Adaptability:**, **Outside Dia. of Head:**, and **Collet Size:**.

Unit Adaptability:

- 160 = VE 20 (except QC)
- 230 = VE 30, 34, 35 (except QC)
- 230T = VE 30, 34, 35 (except QC)
- 430 = VE 40, 44, 45 (except QC)
- 430T = VE 40, 44, 45 (except QC)
- 82 = VE 20, 26 (with QC)
- 83 = VE 30, 35 (with QC)
- 84 = VE 36, 45 (with QC)

Outside Dia. of Head:

- 63 = 63mm
- 103 = 103mm
- 128 = 128mm

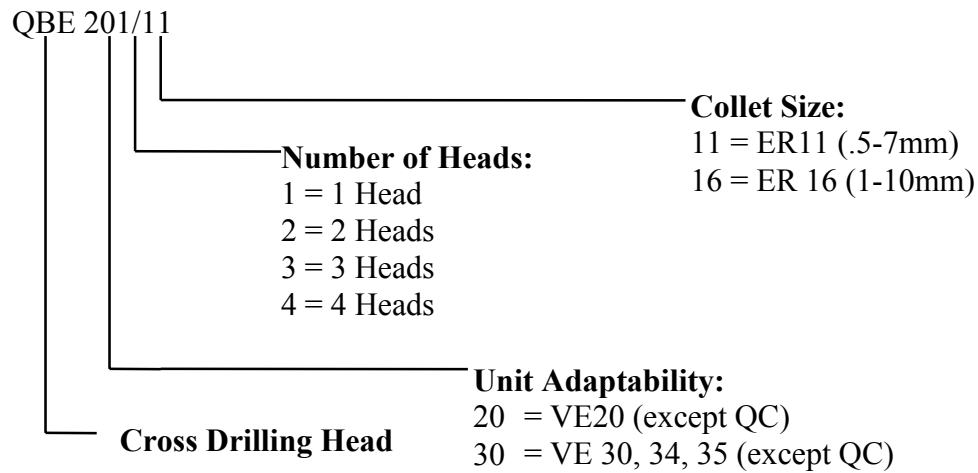
Collet Size:

- 8 = ER8 (.5-5mm)
- 11 = ER11 (.5-7mm)
- 20 = ER20 (1-13mm)
- 25 = ER25 (1-16mm)
- 32 = ER32 (2-20mm)
- 40 = ER40 (3-26mm)

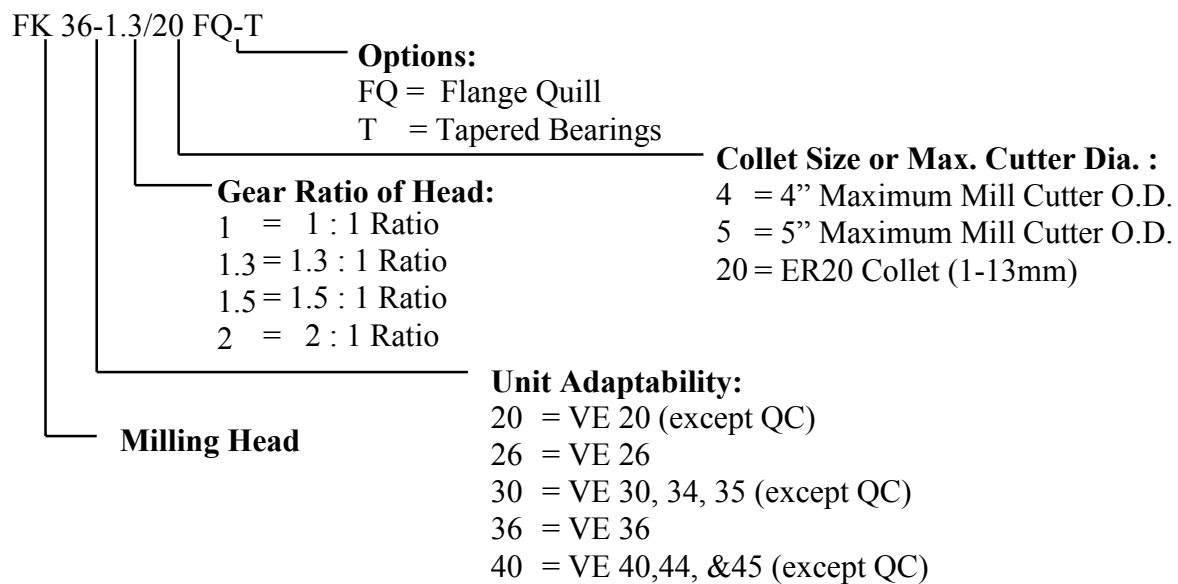
The diagram illustrates the components of the part number **THF QC 84-103/11** using a tree structure:

- THF**: Turning Head Finish
- QC**: Quick Change (only on Units with the QC feature)
- 84-103/11**:
 - 84**: Unit Adaptability
 - 30 = VE 30, 34, 35 (except QC)
 - 40 = VE 40, 44, 45 (except QC)
 - 83 = VE 30, 35 (with QC)
 - 84 = VE 36, 45 (with QC)
 - 103**: Outside Dia. of Head
 - 96 = 96mm
 - 103 = 103mm
 - 128 = 128mm
 - 132 = 132mm
 - 11**: Collet Size
 - 11 = ER11 (.5-7mm)
 - 16 = ER 16 (1-10mm)
 - 25 = ER25 (1-16mm)

7. CROSS DRILLING HEAD ASSEMBLIES



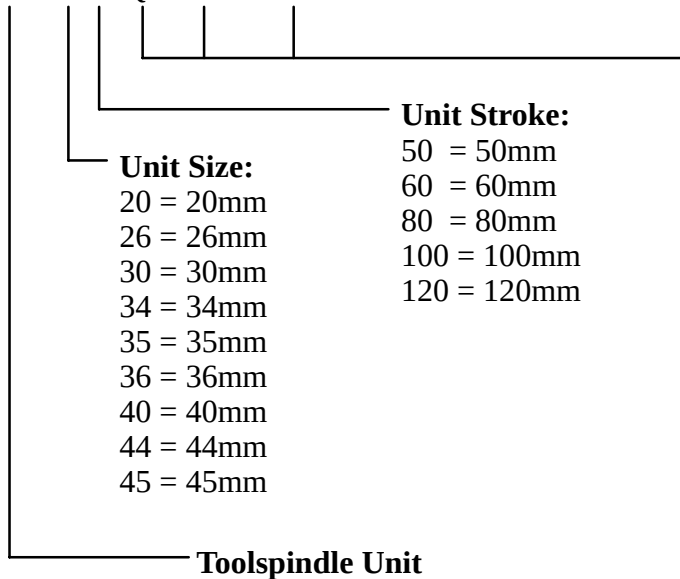
8. MILLING HEADS



UNIT DESIGNATION GUIDE

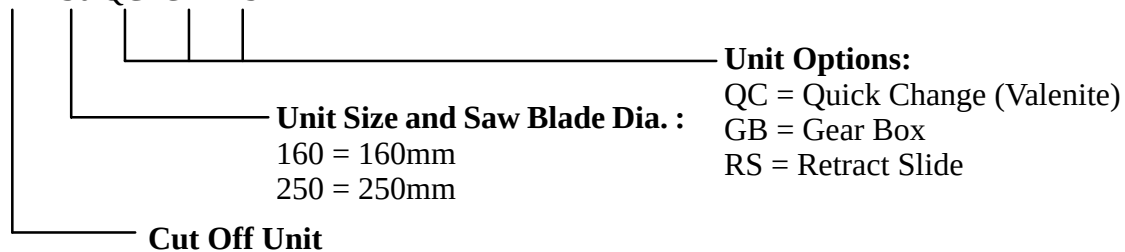
1. TOOLSPINDLE UNITS

VE 26/80 QC-CF-SERVO



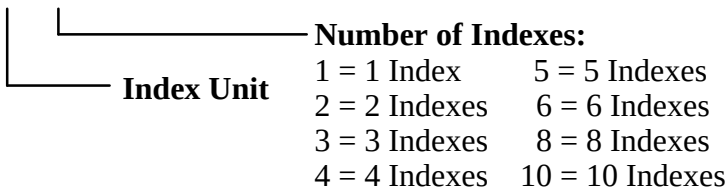
2. CUT OFF UNITS

AE 250 QC-GB-RS

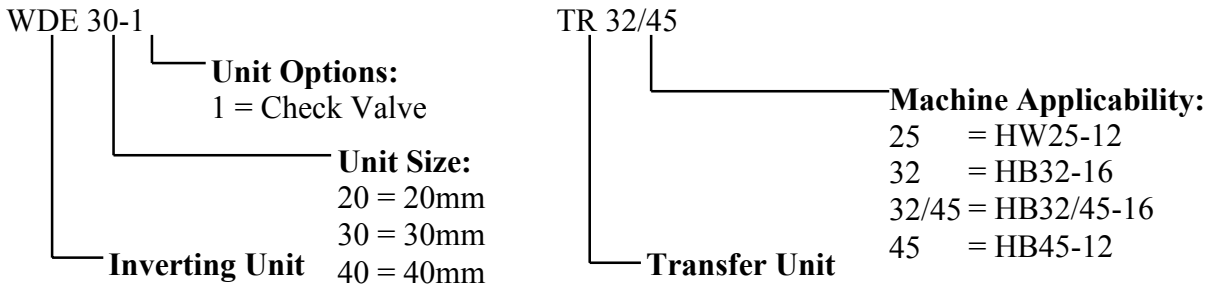


3. INDEX UNITS

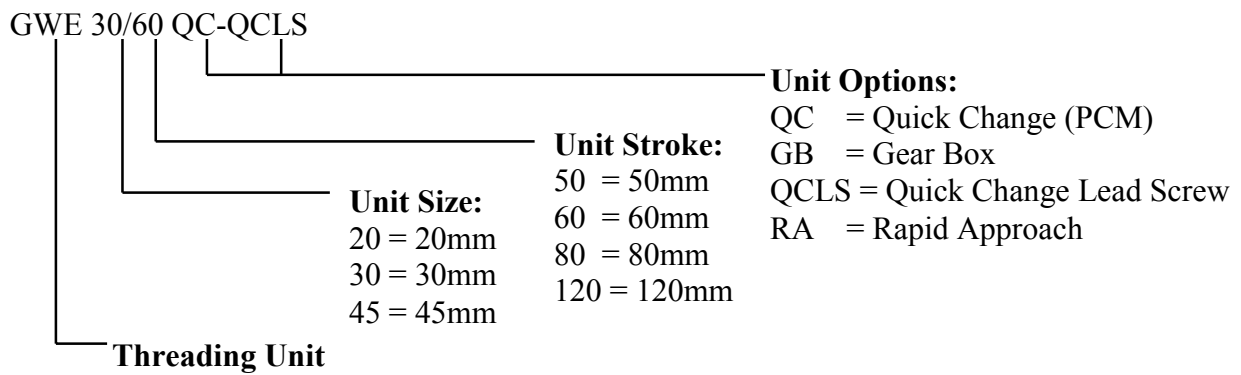
TE X5



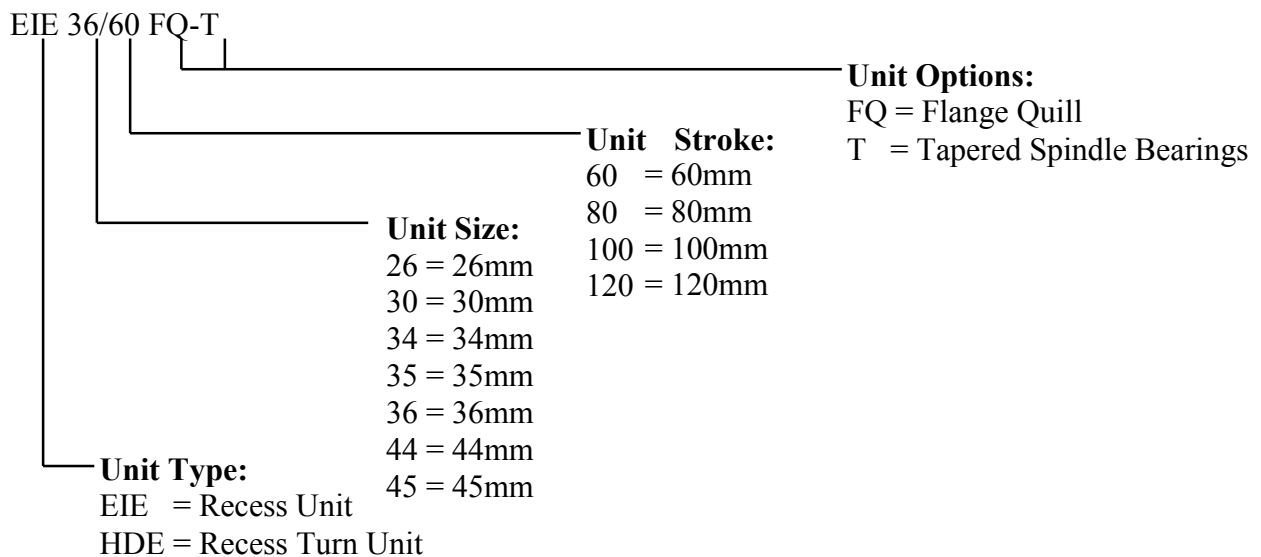
4. INVERTING AND TRANSFER UNITS



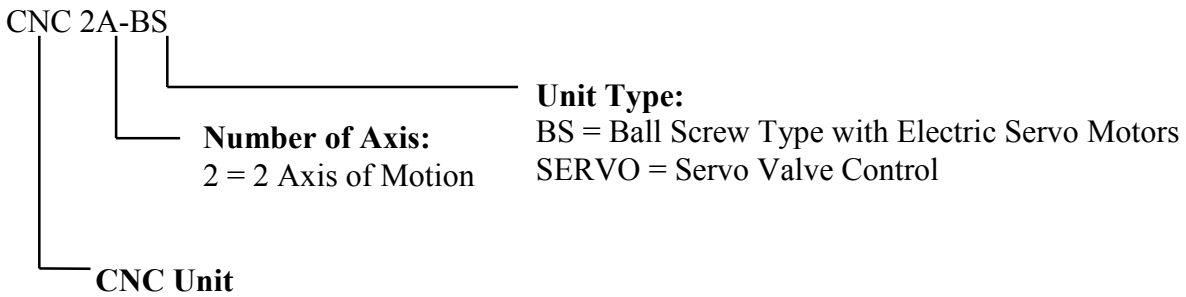
5. THREADING UNITS



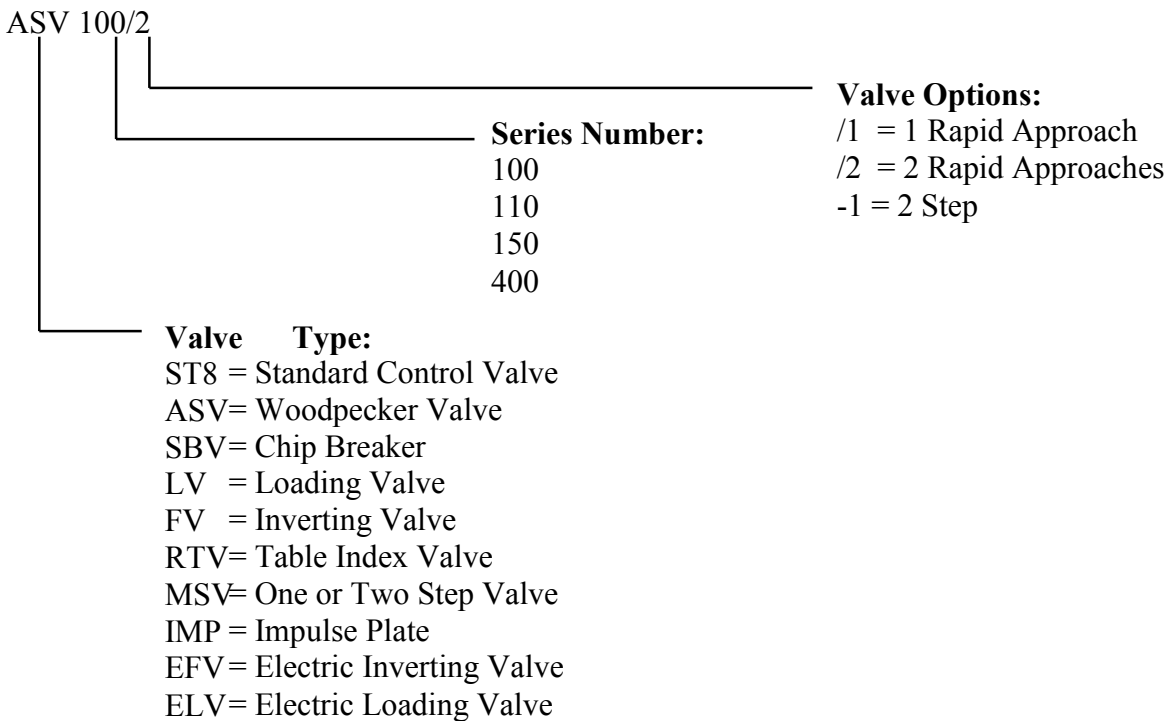
6. RECESS AND RECESS TURN UNITS



7. CNC UNITS

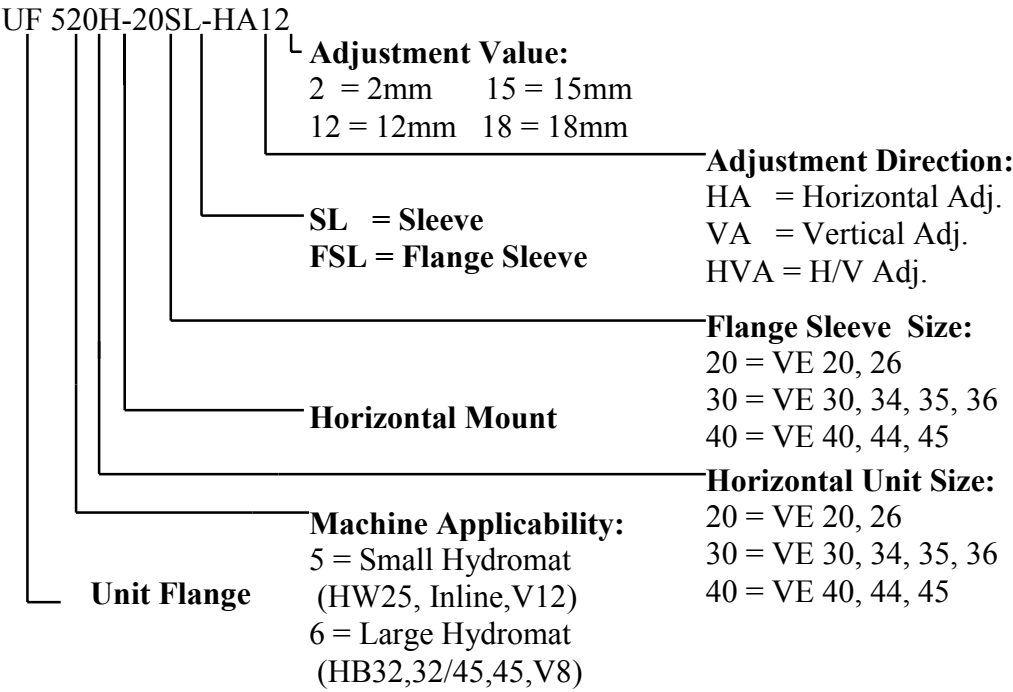


CONTROL VALVE DESIGNATION GUIDE

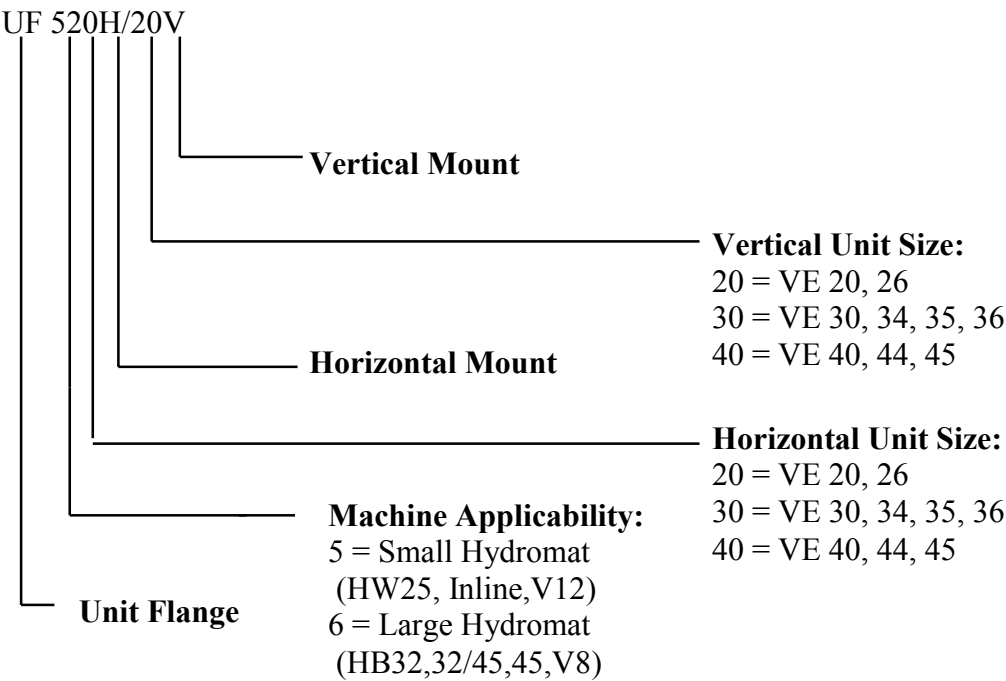


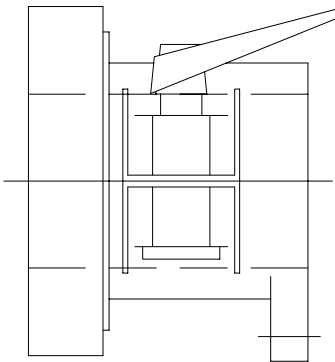
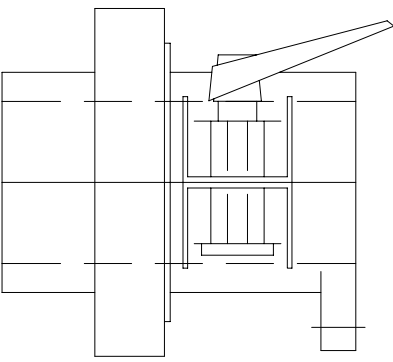
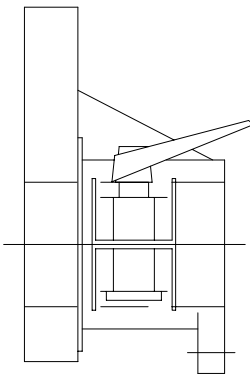
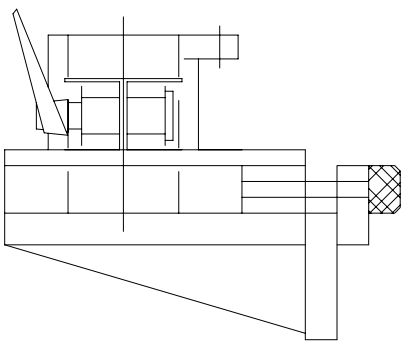
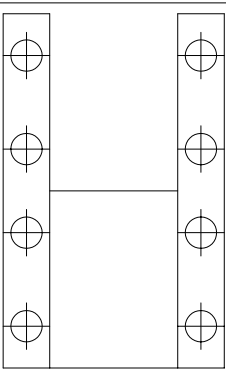
FLANGE DESIGNATION GUIDE

Horizontal:



Vertical:



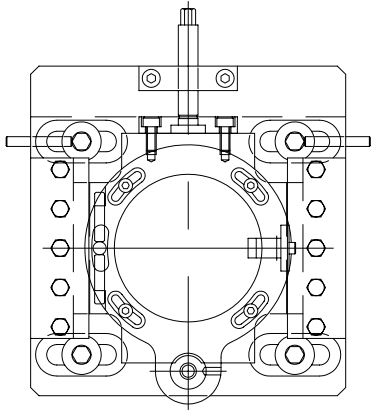
UNIT FLANGES		HW-25	HB-32,HB-45
	HORIZONTAL		
	20/50	5.10.018-2	6.10.031-2
	30/60	5.10.017-2	6.10.032-2
	40/80	N/A	6.10.033-2
	EXTENDED FLANGE		
	20/50	5.10.042-2	6.10.066-2
	30/60	N/A	6.10.067-2
	40/80	N/A	N/A
	HORIZONTAL/VERTICAL		
	20/50	5.10.022-2 520H/20V	N/A
	30/60	5.10.021-2 530H/20V	6.10.038-2 630H/30V
			6.10.039-4 630H/20V
	40/80	N/A	6.10.036-2 640H/30V
			6.10.037-2 640H/20V
	VERTICAL SUPPORT		
	20/50	5.12.013-2	6.12.039-2
	30/60	5.12.014-2	6.12.038-2
	40/80	N/A	N/A
	VERTICAL BRACKET		
	20/50	5.12.115	6.12.103
			6.12.017
	30/60	5.12.115	6.12.103
			6.12.017
	40/80	N/A	N/A

REV. 10/12/2000

UNIT FLANGES

HW-25

HB-32,HB-45

HORIZONTAL, VERTICAL, RADIAL
ADJUSTMENT

20/50

5.10.069-3 HVA 2MM

6.10.095-1 HVA 15MM

5.10.053-3 HVA 15MM

0.061.0365-9 XF HVA 15MM

A.061.0080-6 XF HVA 2MM

30/60

A.061.0110-9 HVA 3MM

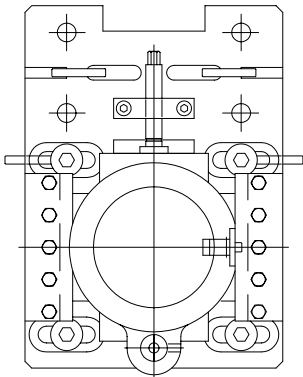
6.10.0103-2 HVA 15MM

5.10.053-4 HVA 7MM

6.10.0104-4 XF HVA 10MM

40/80

N/A

0.061.0365-8
HVA 10MMHORIZONTAL/ VERTICAL,
HORIZONTAL, VERTICAL ADJUSTMENT

20/50

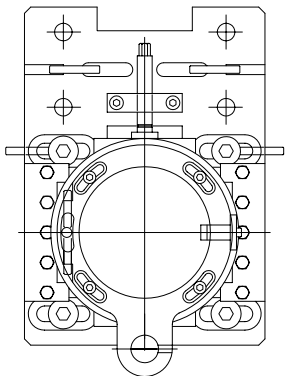
A.061.0081-1
520H/20V-HVA15MM6.10.087-1
620H/20V-HVA 15MMA.061.0081-3
520H/20V-XF HVA 2MMB.061.023-1
620H/20V-HVA 15MM0.061.0367-4
620H/20V-XF HVA 15MM

30/60

5.10.076
530H/30V-HVA 7MM0.061.0367-2
630H/20V HVA 5MMB.061.023-2
630H/20V-HVA15MM0.061.0367-5
630H/20V-XF HVA 5MM

40/80

N/A

0.061.0367-3
640H/20V-HVA 10MMB.061.023-3
640H/20V-HVA 10MMHORIZONTAL/VERTICAL
HORIZONTAL, VERTICAL, RADIAL ADJUSTMENT

20/50

A.061.0081-4
520H/20V-HVA 15MM0.061.0367-6
620H/20V-HVA 15MMA.061.0081-6
520H/20V-XF HVA 2MM0.061.0367-9
620H/20V-XF HVA 15MM

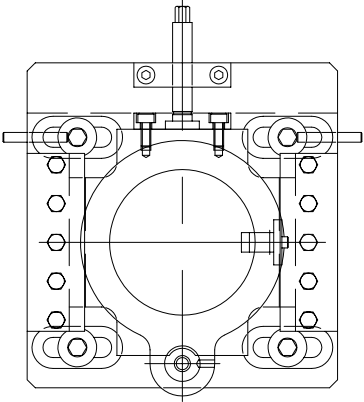
30/60

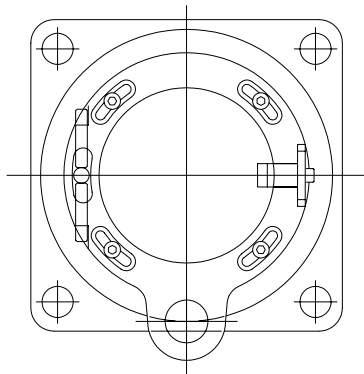
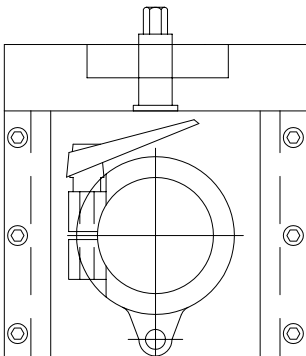
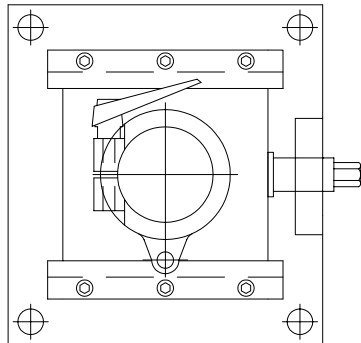
A.061.0081-5
530H/30V-HVA 15MM0.061.0367-7
630H/20V-HVA 15MM

40/80

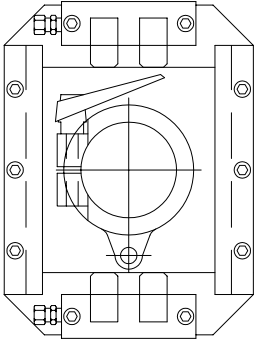
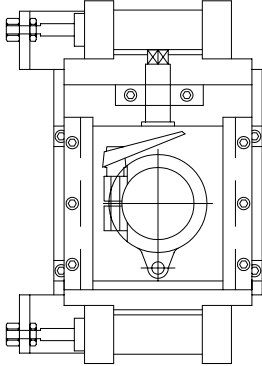
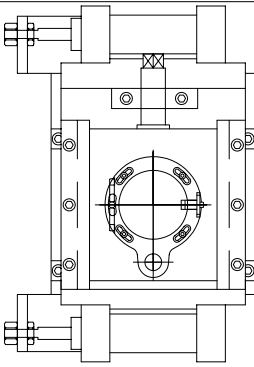
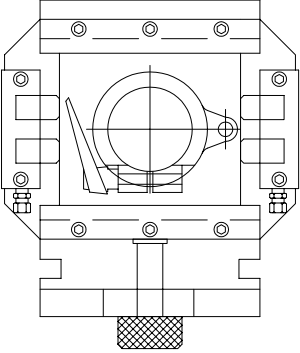
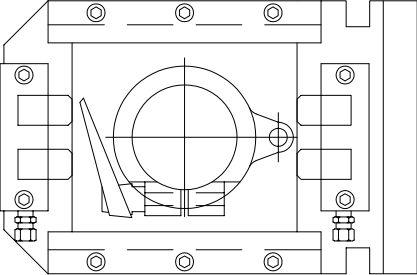
N/A

0.061.0367-8
640H/20V-HVA 10MM

UNIT FLANGES		HW-25	HB-32,HB-45
	HORIZONTAL/VERTICAL ADJUSTMENT		
	20/50	5.10.033-2 HVA 3MM	6.10.052-2 HVA 4MM
		5.10.031-2 Micro HVA 3MM	□.061.0365-4 XF HVA 15MM
		5.10.053-1 HVA 15MM	6.10.072-1 HVA 15MM
		A.061.0080-3 XF HVA 2MM	6.10.092-1 HVA 15MM
			B.061.024-1 HVA 15MM
	30/60	5.10.028-2 Micro HVA 2MM	6.10.046-4 Micro HVA 4MM
			6.10.063-2 HVA 7MM
		5.10.053-2 HVA 7MM	6.10.034-2 HVA 9MM
			6.10.072-2 HVA 15MM
			6.10.072-4 XF HVA 10MM
			6.10.088-1 HVA 15MM
			B.061.024-2 HVA 15MM
			6.10.089-1 XF HVA 15MM
			B.061.024-4 XF HVA15MM
	40/80	N/A	6.10.045-4 Micro HVA4MM
			B.061.024-3 HVA 10MM
			□.061.0365-3 HVA 10MM

UNIT FLANGES		HW-25	HB-32,HB-45	
	RADIAL ADJUSTMENT			
	20/50	5.10.068-2	6.10.0108	
		5.10.042-9 XF	□.061.0382-6 XF	
	30/60	5.10.056-2	6.10.0101-2	
			□.061.0382-7 XF	
40/80	N/A	6.10.0102-2		
	VERTICAL ADJUSTMENT			
	20/50	5.10.032-2 VA 15MM	N/A	
	30/60	N/A	6.10.064-2 MICRO VA 15MM	
			6.10.069-2 MICRO VA 15MM	
	40/80	N/A	6.10.050 VA 15MM (HB45 ONLY)	
			6.10.065 MICRO VA 15MM	
	HORIZONTAL ADJUSTMENT			
	20/50	N/A	6.10.023-2 HA 18MM	
	30/60	N/A	6.10.024-2 HA 15MM	
	40/80	N/A	N/A	

REV. 10/15/2001

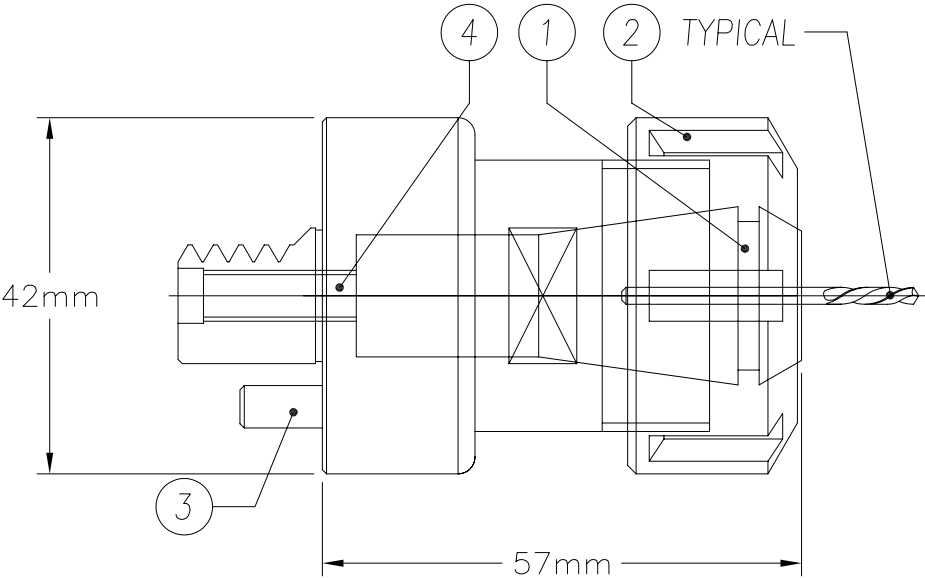
UNIT FLANGES		HW-25	HB-32,HB-45
	VERTICAL HYDRAULIC SLIDE		
	20/50	5.10.047-1 V-SLIDE 12MM	6.10.059-1 V-SLIDE 11MM
		5.10.049-1 XF V-SLIDE 12MM	
	30/60	N/A	N/A
	40/80	N/A	6.10.0119 V-SLIDE 12MM
	HORIZONTAL HYDRAULIC SLIDE VERTICAL ADJUSTMENT		
	20/50	5.10.048-2 HS 10MM	0.061.0556-1 VA 25MM
		A.061.0097 VA 10MM	0.061.0556-5 XF VA 25MM
	30/60	N/A	0.061.0556-2 VA 25MM
	40/80	N/A	N/A
	HORIZONTAL HYDRAULIC SLIDE VERTICAL, RADIAL ADJUSTMENT		
	20/50	N/A	0.061.0556-3 VA 25MM
	30/60	N/A	0.061.0556-4 VA 25MM
	40/80	N/A	N/A
	VERTICAL SUPPORT HYDRAULIC X-SLIDE		
	20/50		5.39.006-2 X SLIDE 25MM
	30/60		5.39.016-4 X SLIDE 18MM
	VERTICAL SUPPORT HYDRAULIC Z-SLIDE		
	20/50	5.12.021-1 Z SLIDE 30MM	6.12.052-2 Z SLIDE 56MM
	30/60	N/A	6.12.053-2 Z SLIDE 56MM

SECTION 2

DRILL HEADS

SECTION 2: DRILL HEADS

DH QC 82/25.....82124



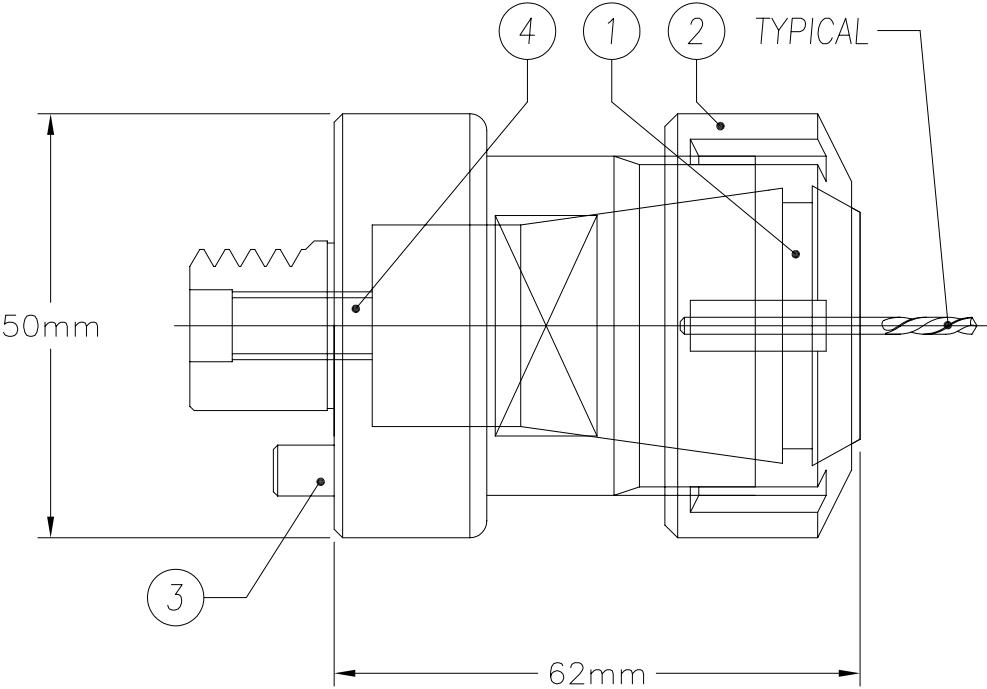
USE TORQUE WRENCH #S-0-060-048-01

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1-16mm)	ER25
2	1	CLAMP NUT	925120
3	1	DOWEL PIN	5x20mm
4	1	STOP SCREW With Nylon	M6x16
5*	1	WRENCH OPEN END (30mm)	72102-30mm
6*	1	WRENCH SPANNER E25	925180

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH QC 83/32.....83125



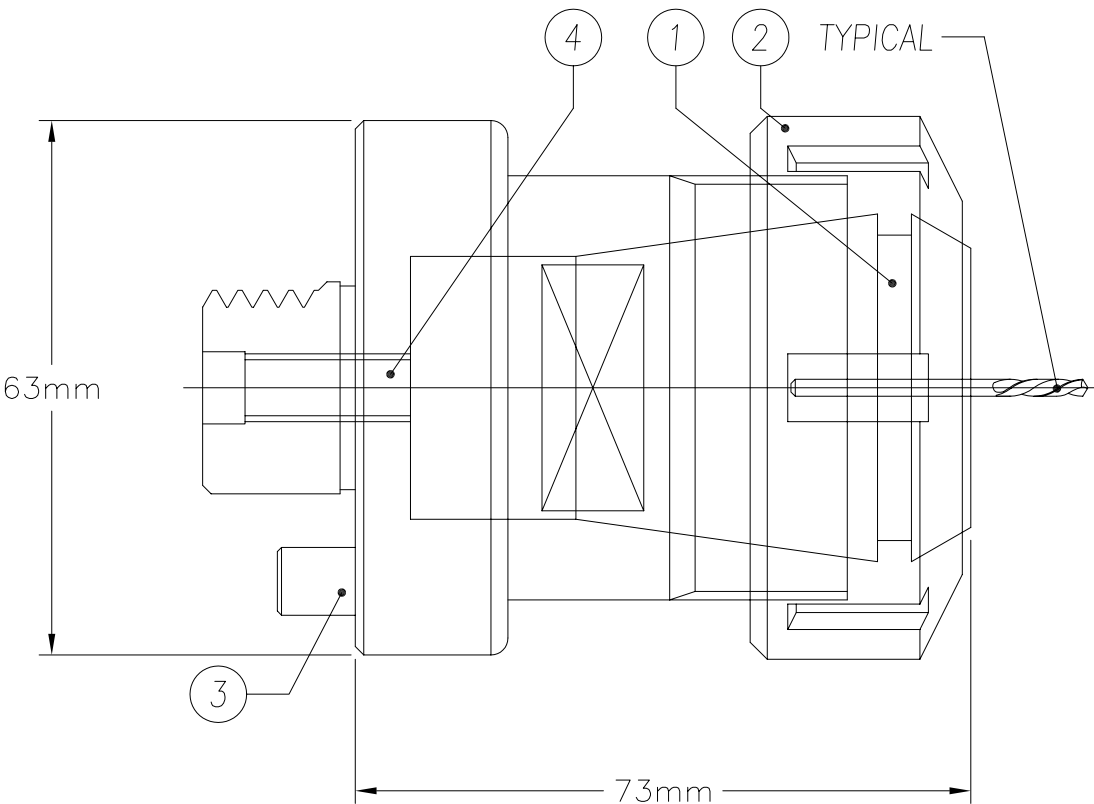
USE TORQUE WRENCH #S-0-060-048-02

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 2-20mm)	ER32
2	1	CLAMP NUT	932120
3	1	DOWEL PIN	6 x 20mm
4	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
5*	1	WRENCH OPEN END (30mm)	72102-30mm
6*	1	WRENCH SPANNER E32	932180

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH QC 84/40.....84126



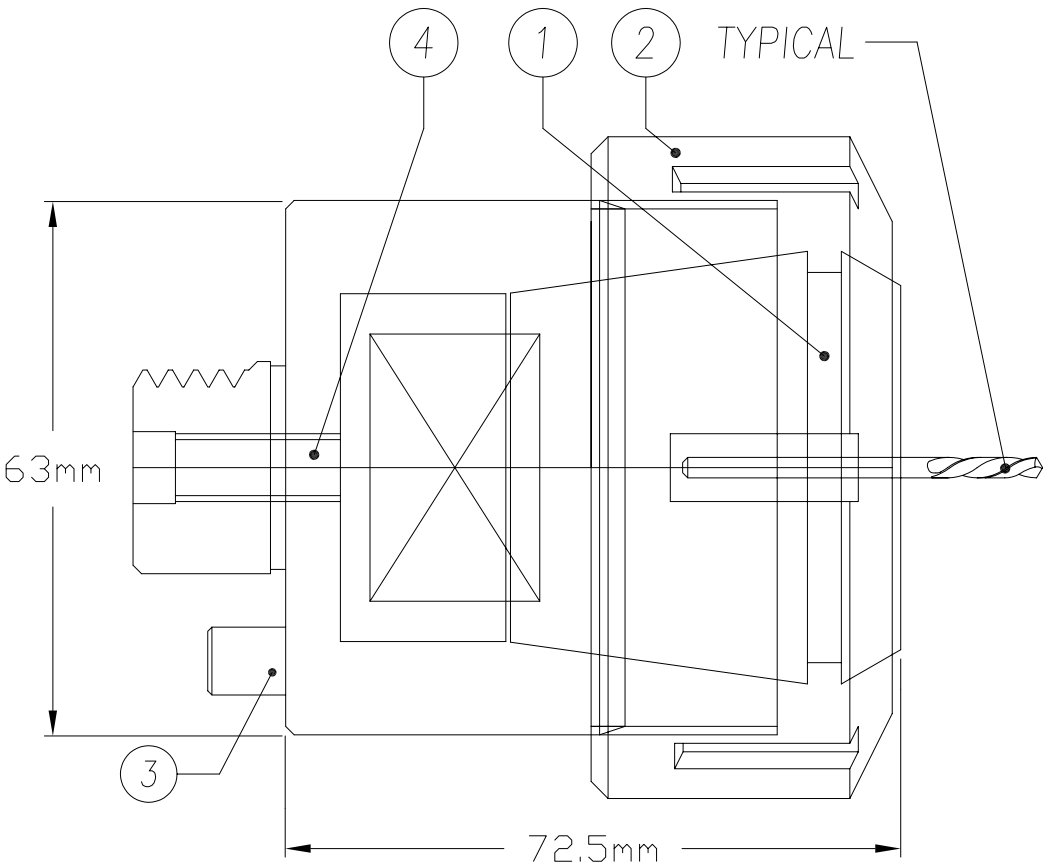
USE TORQUE WRENCH #S-0-060-048-03

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 3-26mm)	ER40
2	1	CLAMP NUT	940120
3	1	DOWEL PIN	8 x 20mm
4	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
5*	1	WRENCH OPEN END (41mm)	72102-41mm
6*	1	WRENCH SPANNER E40	940180

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH QC 84/46 ER50.....84127-00-1



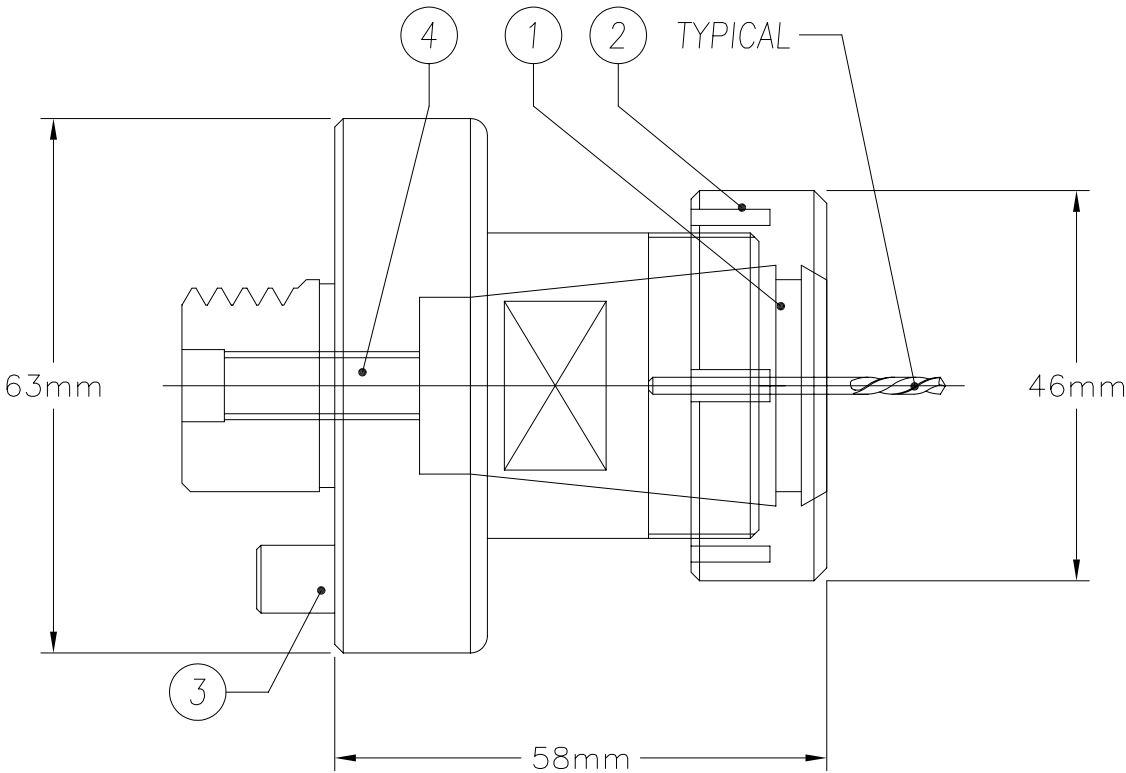
USE TORQUE WRENCH #S-0-060-048-03

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 4-34mm)	ER50
2	1	CLAMP NUT	950120
3	1	DOWEL PIN	8 x 20mm
4	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
5*	1	WRENCH OPEN END (55mm)	72102-55mm
6*	1	WRENCH SPANNER E50	950180

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH QC 84/20.....84128



USE TORQUE WRENCH #S-0-060-048-03

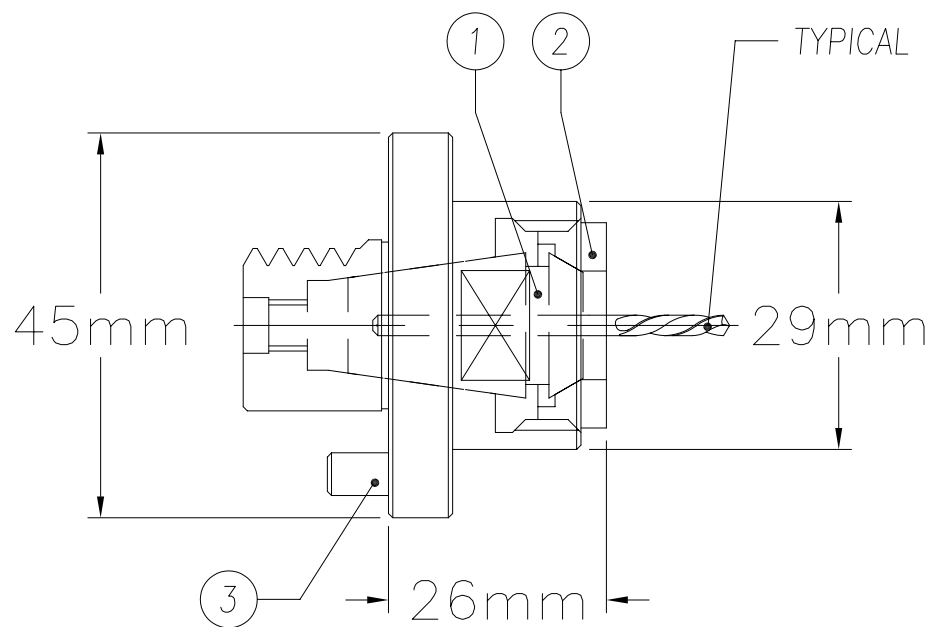
ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 3-20mm)	NBC20
2	1	CLAMP NUT	NBN20
3	1	DOWEL PIN	8 x 20mm
4	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
5*	1	WRENCH OPEN END (30mm)	72102-30mm
6*	1	WRENCH SPANNER	NBK20

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH QC 83/16.....83212

* SPECIAL FOR CROSS DRILLING HEAD ONLY!



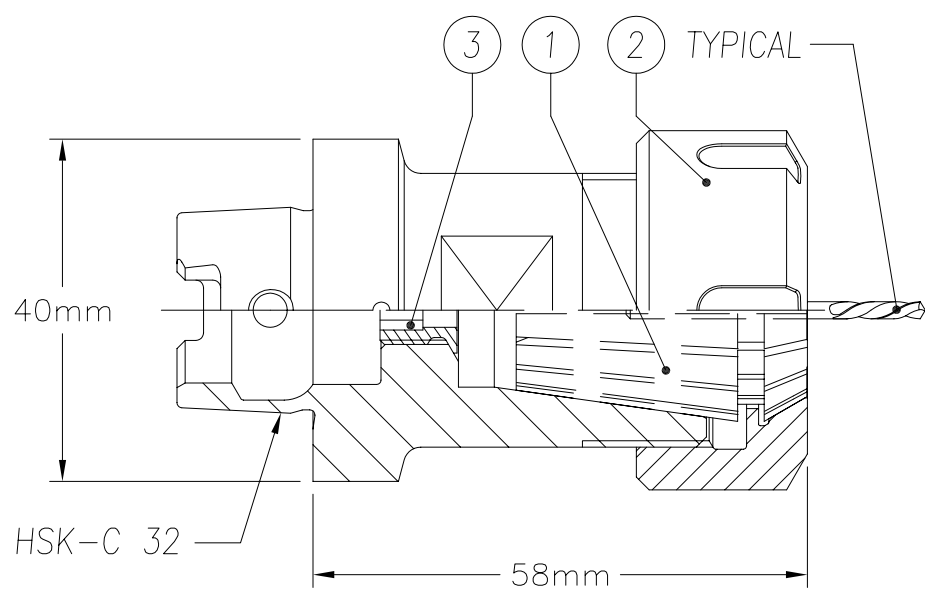
USE TORQUE WRENCH #S-0-060-048-02

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE .5-10mm)	ER16
2	1	PIN FACE NUT ER16A	916110
3	1	DOWEL PIN	5 x 16mm
4*	1	WRENCH OPEN END (27mm)	72102-27mm
5	1	WRENCH PIN FACE	916170

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C32/25.....H92124

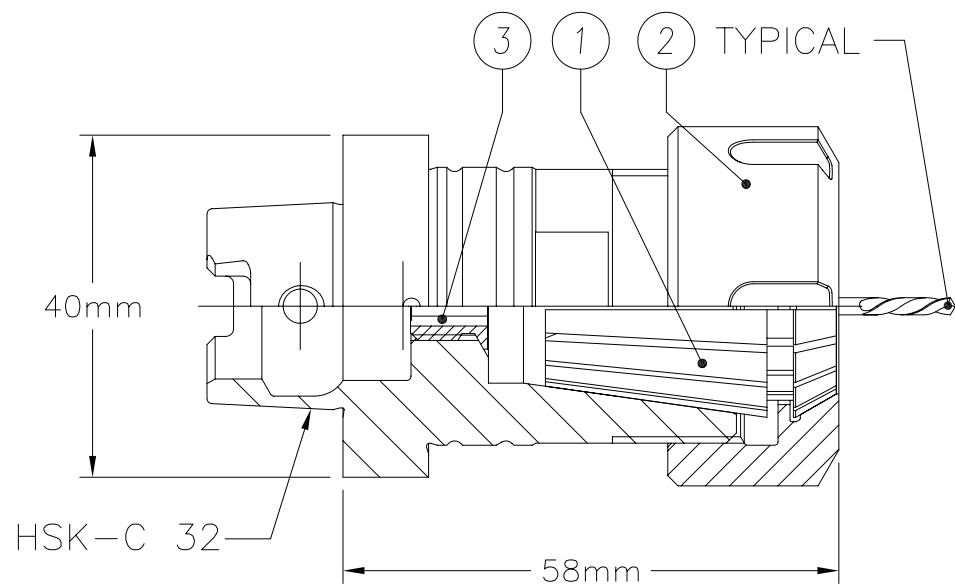


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1–16mm)	ER25
2	1	CLAMP NUT	925120
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (27mm)	72102–27mm
5*	1	WRENCH SPANNER ER25	925180
6*	1	HEX KEY	4912 C32

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C32/25.....HB92124

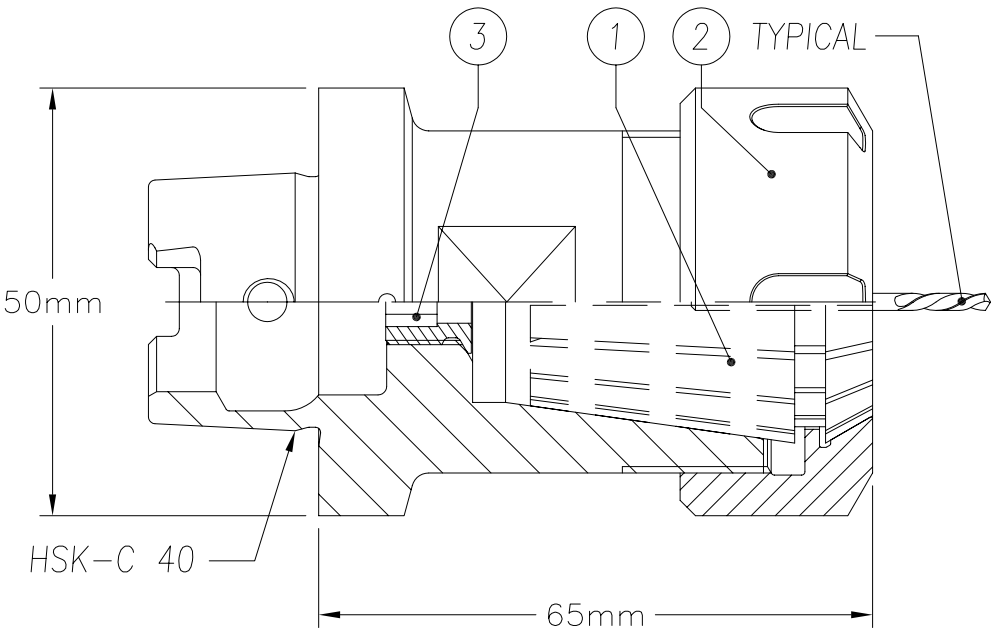


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1–16mm)	ER25
2	1	CLAMP NUT	3425.20000
3	1	STOP SCREW	
4*	1	BALANCE RINGS (FWR 325)	7490.32500
5*	1	WRENCH OPEN END (27mm)	72102–27mm
6*	1	WRENCH SPANNER ER25	925180
7*	1	HEX KEY	4912 C32

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C40/32.....H93125

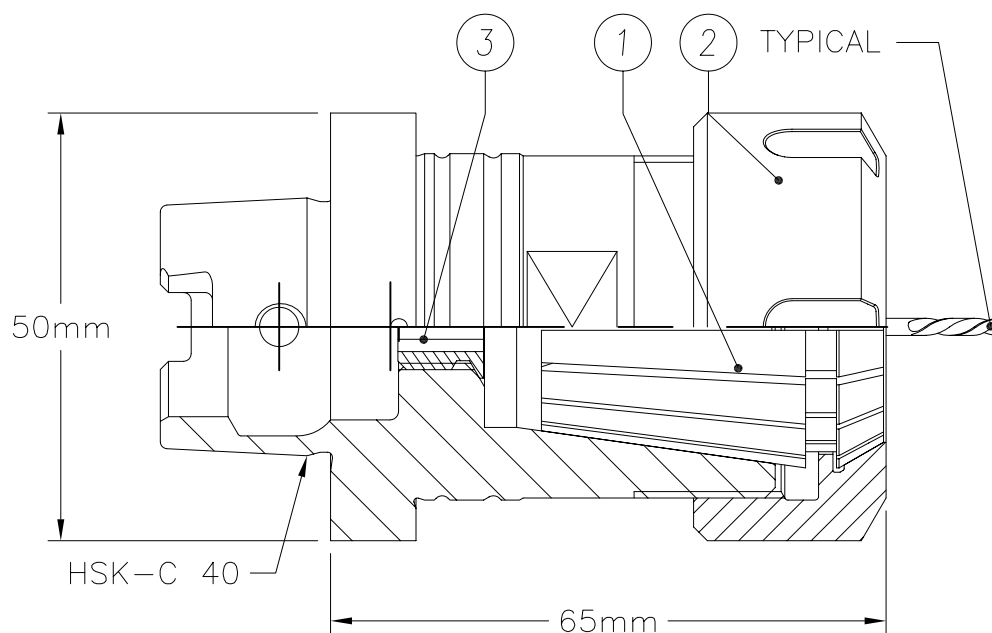


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 2–20mm)	ER32
2	1	CLAMP NUT	932120
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (36mm)	72102–36mm
5*	1	WRENCH SPANNER E32	932180
6*	1	HEX KEY	4912 C40

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C40/32.....HB93125



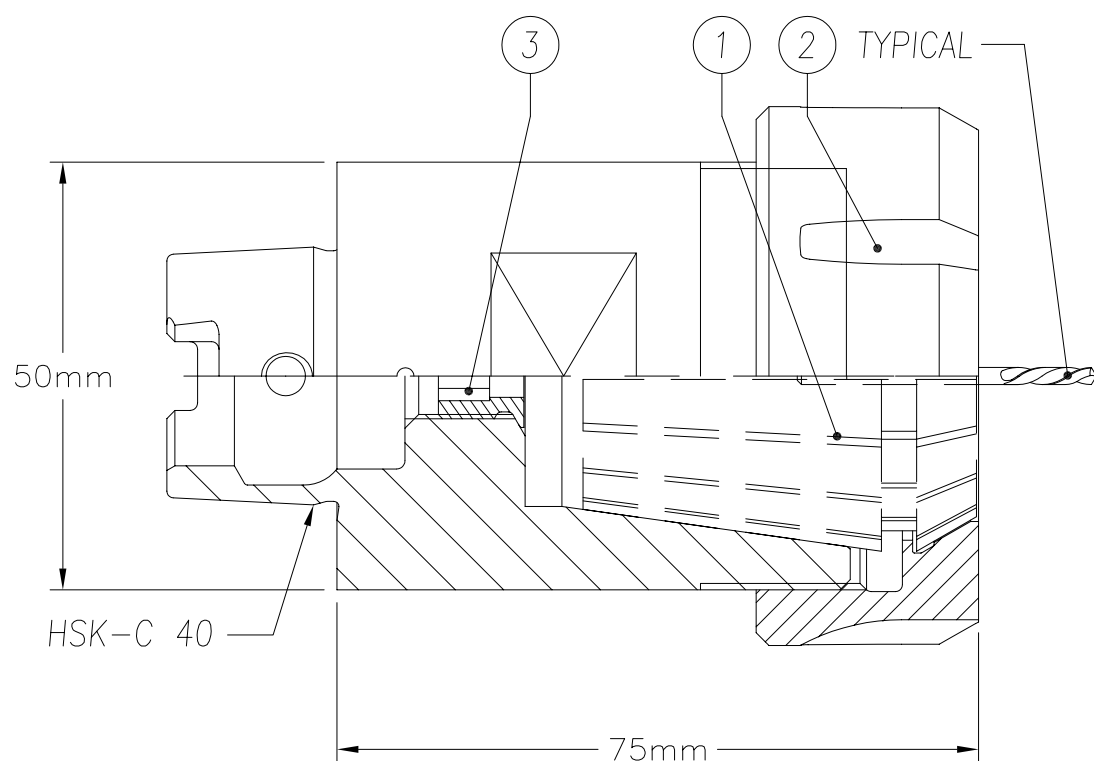
ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 2–20mm)	ER32
2	1	CLAMP NUT	3432.20000
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (36mm)	72102–36
5*	1	WRENCH SPANNER E32	932180
6*	1	HEX KEY	4912 C40
7*	1	BALANCE RINGS (FRW 405)	7490.40500

* NOT INCLUDED WITH TOOLHEAD

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SECTION 2: DRILL HEADS

DH HSK C40/40.....H93126

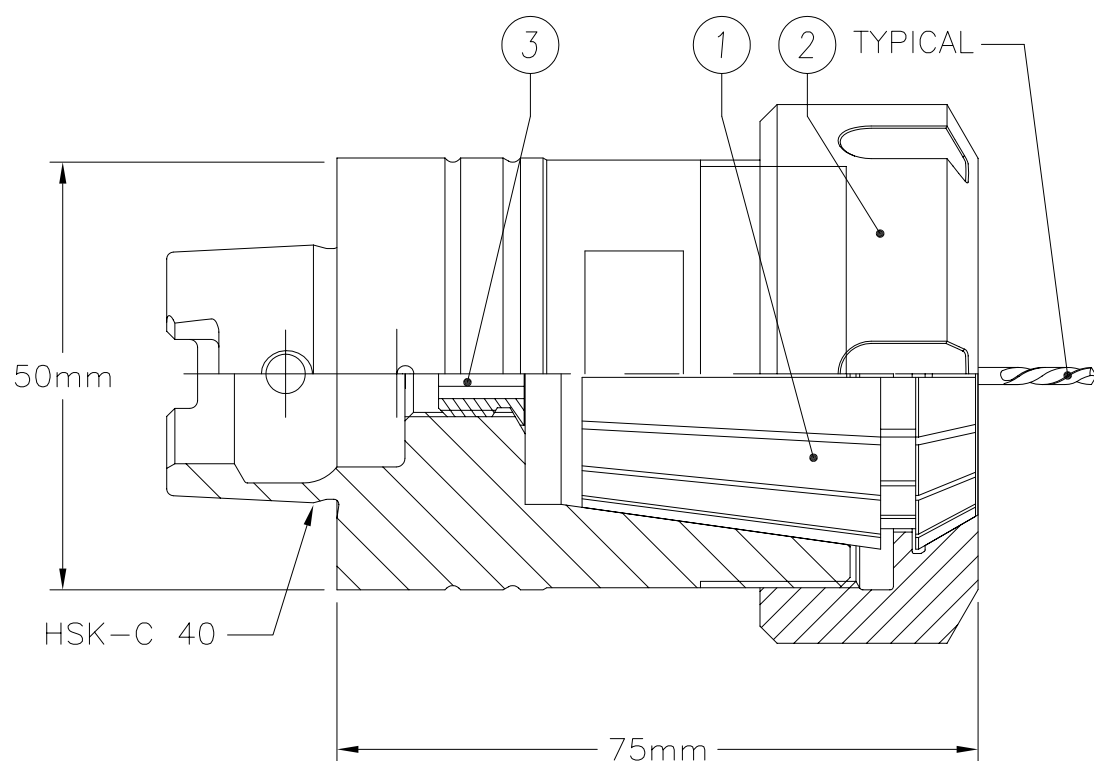


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 3–26mm)	ER40
2	1	CLAMP NUT	940120
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (41mm)	72102–41mm
5*	1	WRENCH SPANNER E40	940180
6*	1	HEX KEY	4912 C40

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C40/40.....HB93126

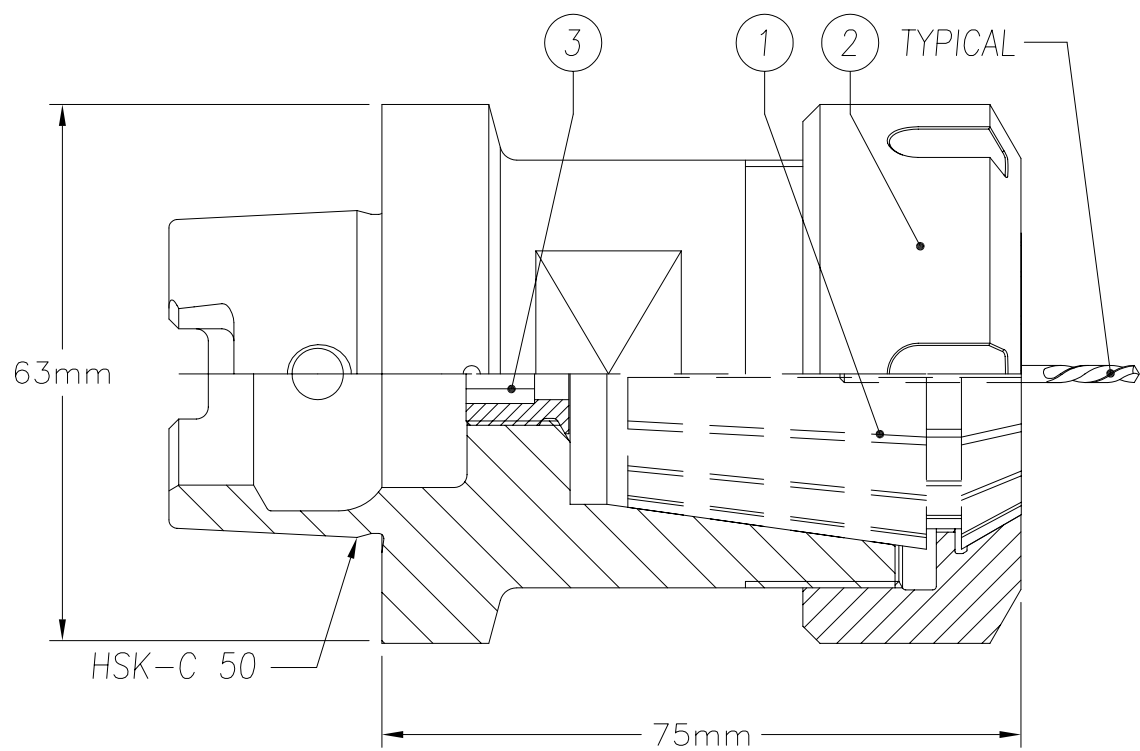


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 3–26mm)	ER40
2	1	CLAMP NUT	3440.20000
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (41mm)	72102–41mm
5*	1	WRENCH SPANNER E40	940180
6*	1	HEX KEY	4912 C40
7*	1	BALANCE RINGS (FRW 505)	7490.50500

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C50/40.....H94126

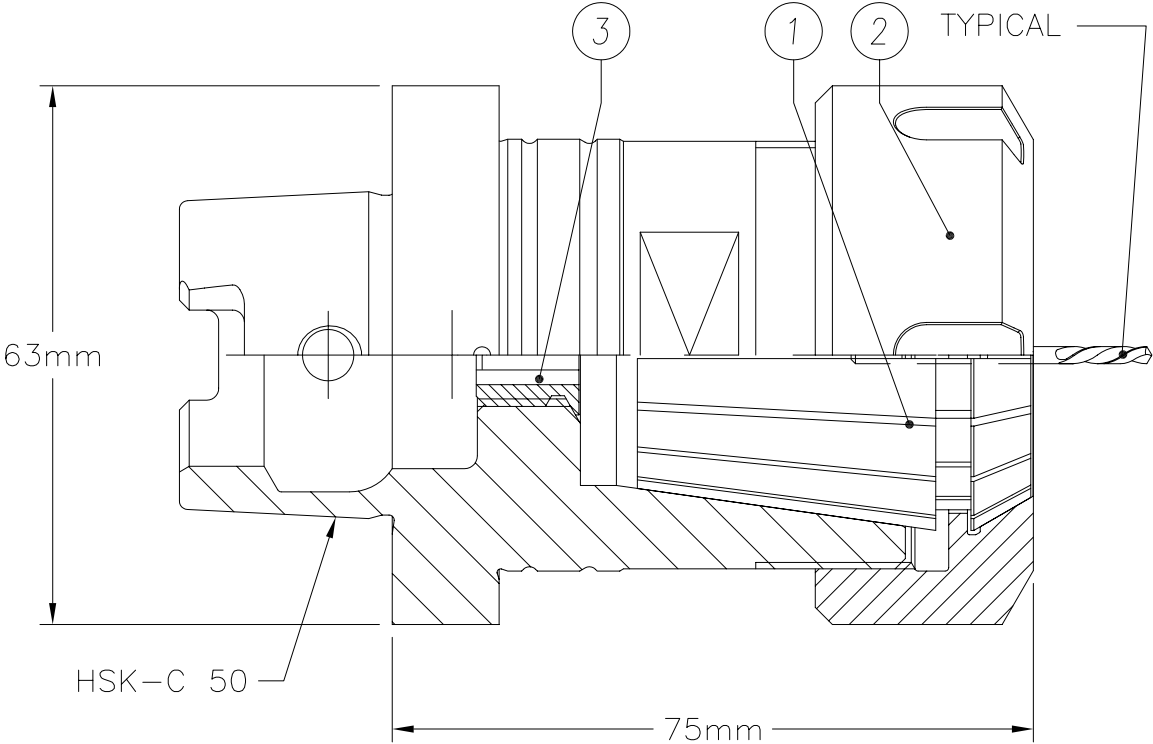


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 3–26mm)	ER40
2	1	CLAMP NUT	940120
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (41mm)	72102–41mm
5*	1	WRENCH SPANNER E32	940180
6*	1	HEX KEY	4912 C50

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C50/40.....HB94126

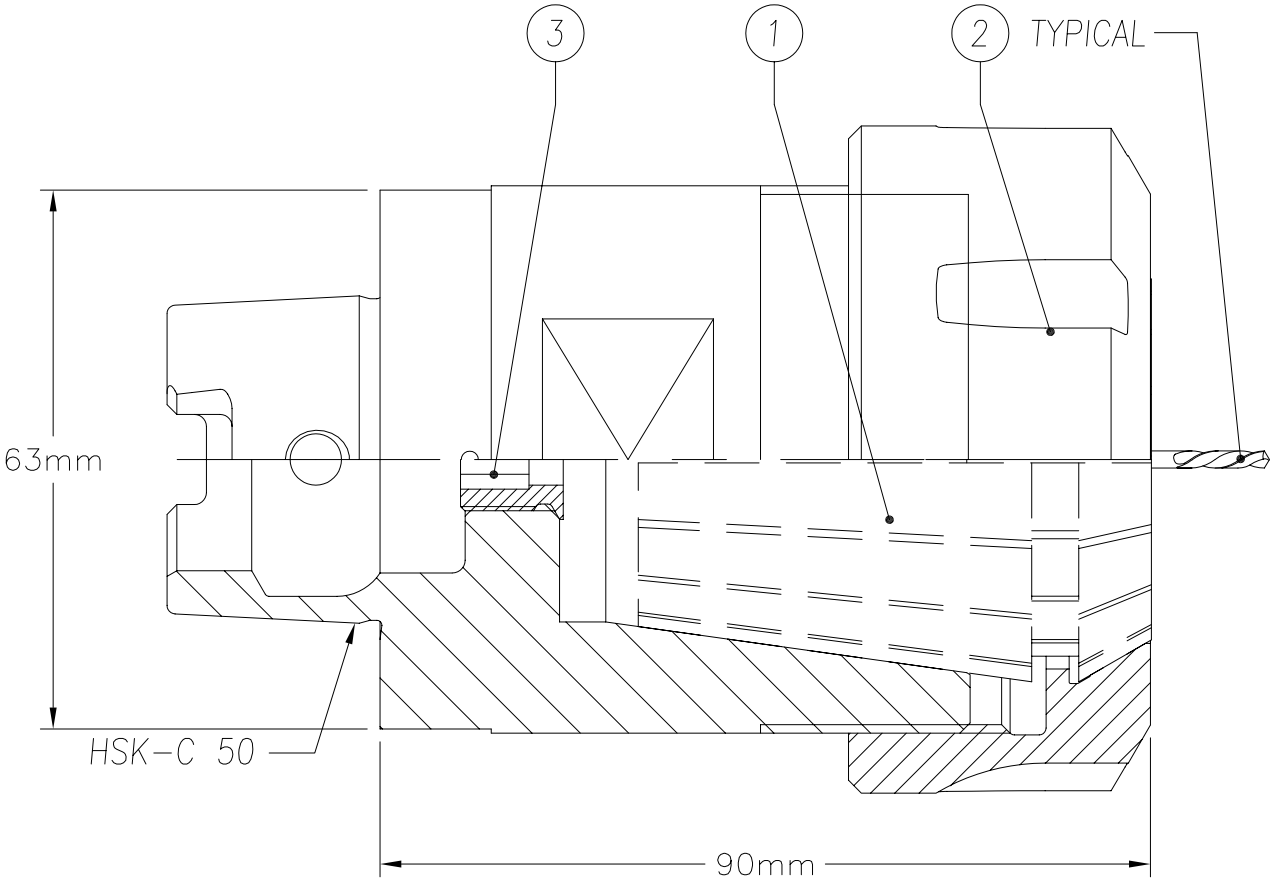


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 3–26mm)	ER40
2	1	CLAMP NUT	3440.20000
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (41mm)	72102–41mm
5*	1	WRENCH SPANNER E32	940180
6*	1	HEX KEY	4912 C50
7*	1	BALANCE RINGS (FRW 505)	7490.50500

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C50/50.....H94127

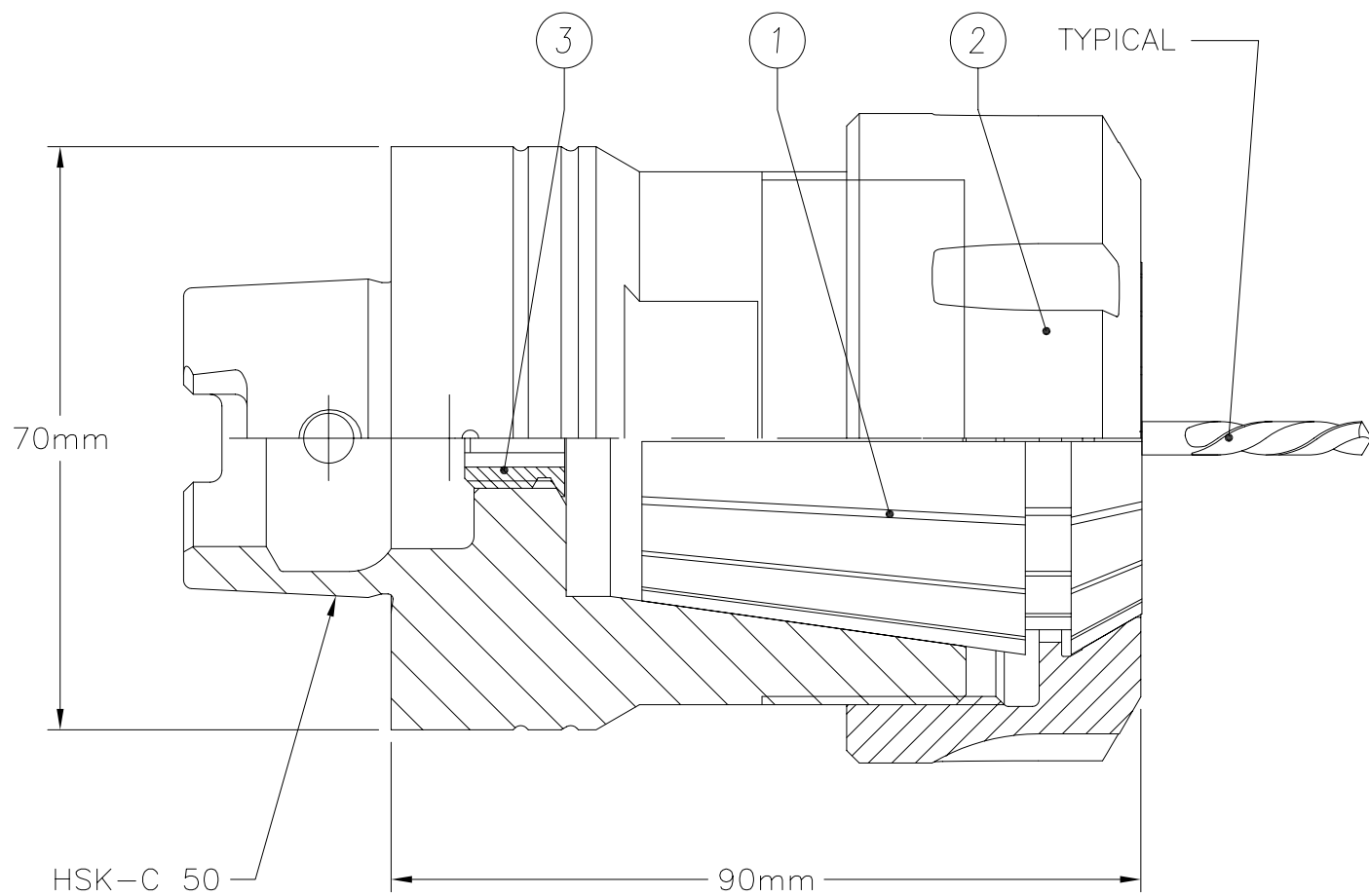


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 4–34mm)	ER50
2	1	CLAMP NUT	950120
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (55mm)	72102–55mm
5*	1	WRENCH SPANNER E50	950180
6*	1	HEX KEY	4912 C50

* NOT INCLUDED WITH TOOLHEAD

SECTION 2: DRILL HEADS

DH HSK C50/50.....HB94127



ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 4–34mm)	ER50
2	1	CLAMP NUT	950120
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (55mm)	72102–55mm
5*	1	WRENCH SPANNER E50	950180
6*	1	HEX KEY	4912 C50
7*	1	BALANCE RINGS (FRW 700)	8020.12200

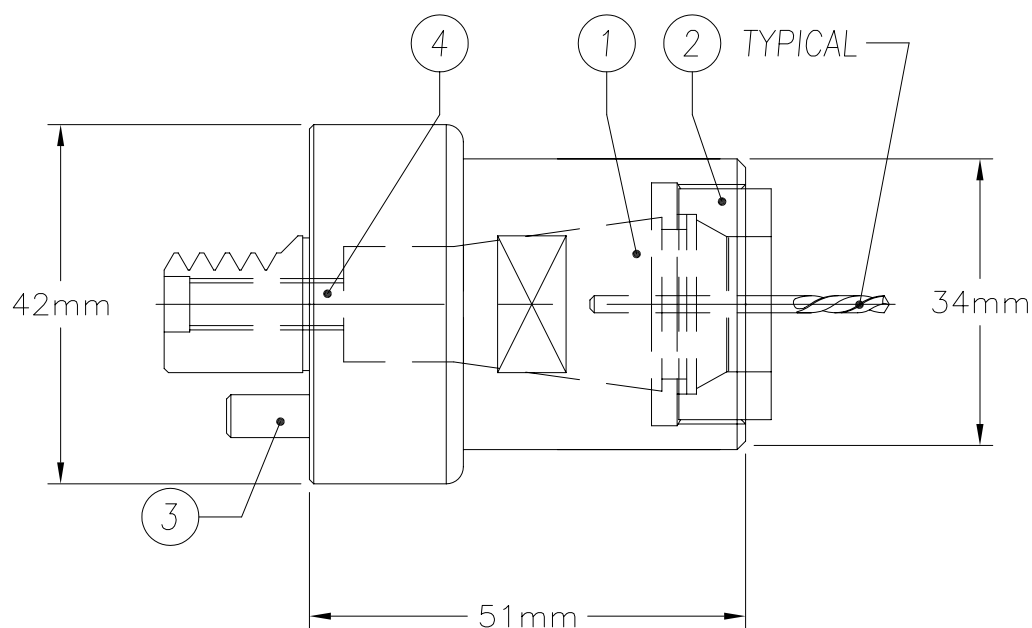
* NOT INCLUDED WITH TOOLHEAD

SECTION 3

DRILL HOLDERS

SECTION 3: DRILL HOLDERS

DH QC 82/20 OD34.....82223



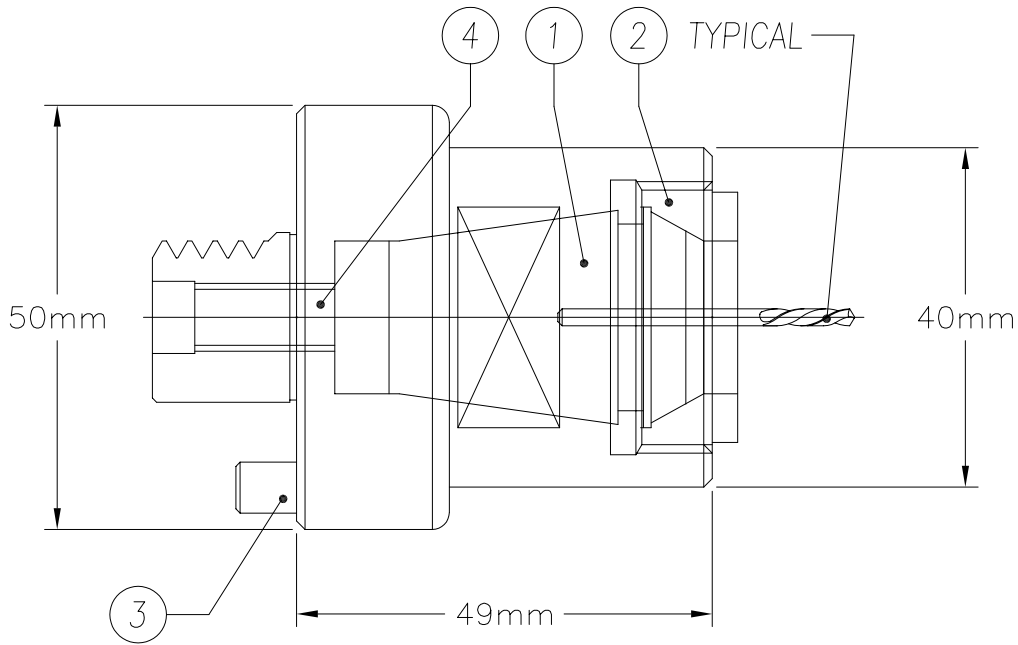
USE TORQUE WRENCH #S-0-060-048-01

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1-13mm)	ER20
2	1	CLAMP NUT	920110
3	1	DOWEL PIN	5 x 20mm
4	1	STOP SCREW With Nylon	M6 x 16
5*	1	WRENCH OPEN END (30mm)	72102-30mm
6	1	WRENCH PIN FACE	920170

* NOT INCLUDED WITH TOOLHEAD

SECTION 3: DRILL HOLDERS

DH QC 83/25 OD40.....83224



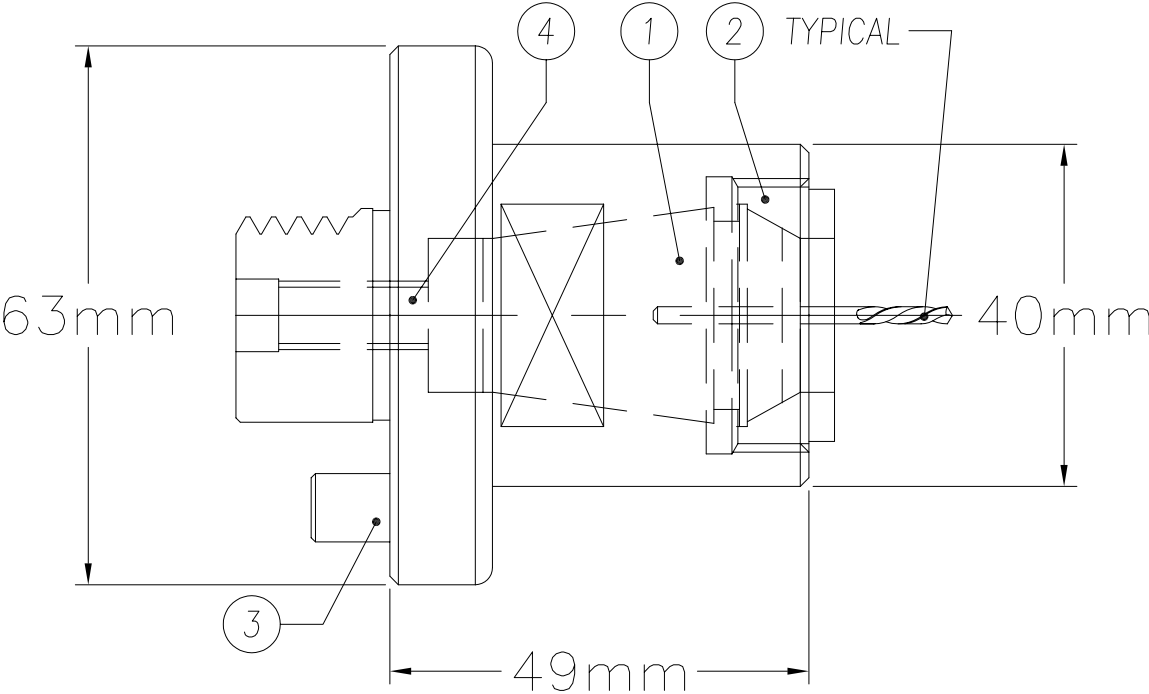
USE TORQUE WRENCH #S-0-060-048-02

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1-16mm)	ER25
2	1	CLAMP NUT	925110
3	1	DOWEL PIN	6 x 20mm
4	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
5*	1	WRENCH OPEN END (30mm)	72102-30mm
6	1	WRENCH PIN FACE	925170

* NOT INCLUDED WITH TOOLHEAD

SECTION 3: DRILL HOLDERS

DH QC 84/25 OD40.....84224



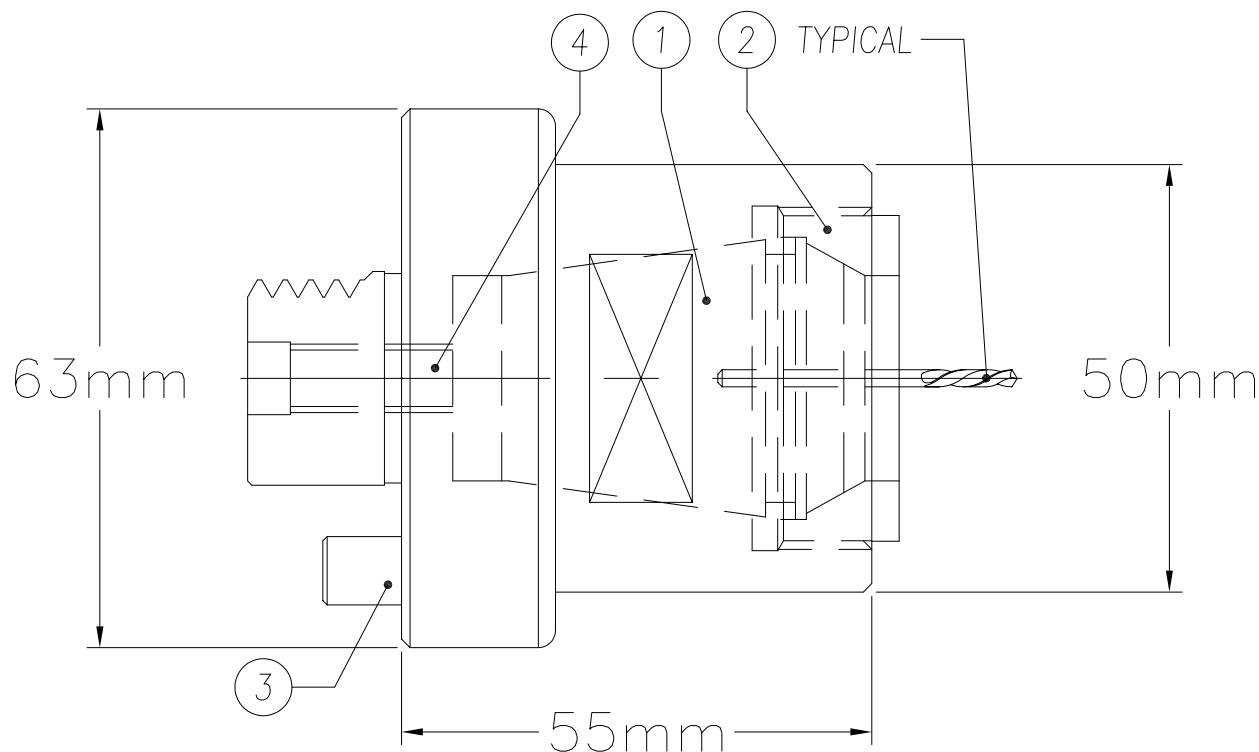
USE TORQUE WRENCH #S-0-060-048-03

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1-16mm)	ER25
2	1	CLAMP NUT	925110
3	1	DOWEL PIN	8 x 20mm
4	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
5*	1	WRENCH OPEN END (30mm)	72102-30mm
6	1	WRENCH PIN FACE	925170

* NOT INCLUDED WITH TOOLHEAD

SECTION 3: DRILL HOLDERS

DH QC 84/32 OD50.....84225



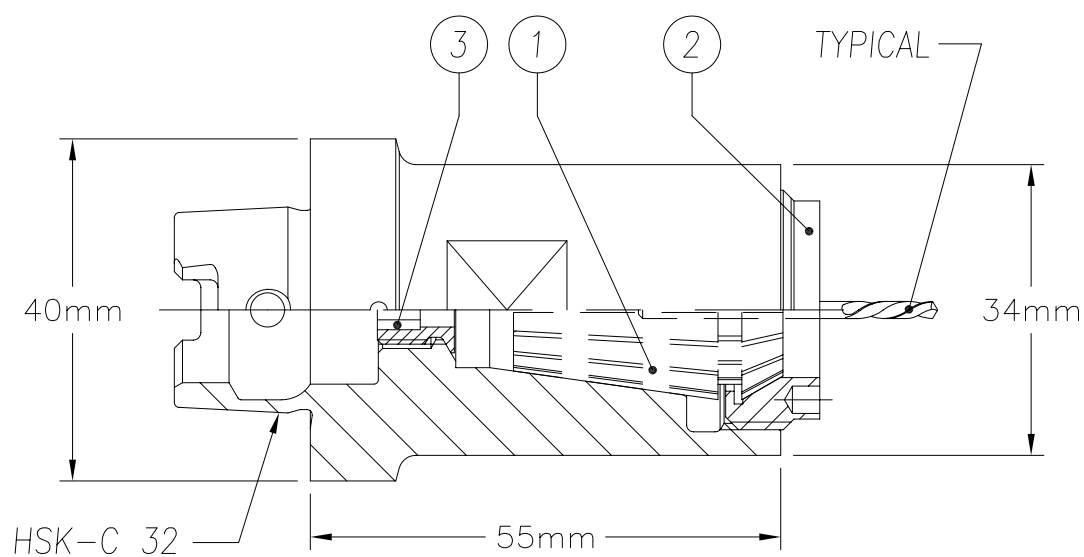
USE TORQUE WRENCH #S-0-060-048-03

ITEM	QTY.	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 2-20mm)	ER32
2	1	CLAMP NUT	932110
3	1	DOWEL PIN	8 x 20mm
4	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
5*	1	WRENCH OPEN END (41mm)	72102-41mm
6	1	WRENCH PIN FACE	932170

* NOT INCLUDED WITH TOOLHEAD

SECTION 3: DRILL HOLDERS

DH HSK C32/20 OD 34.....H92223



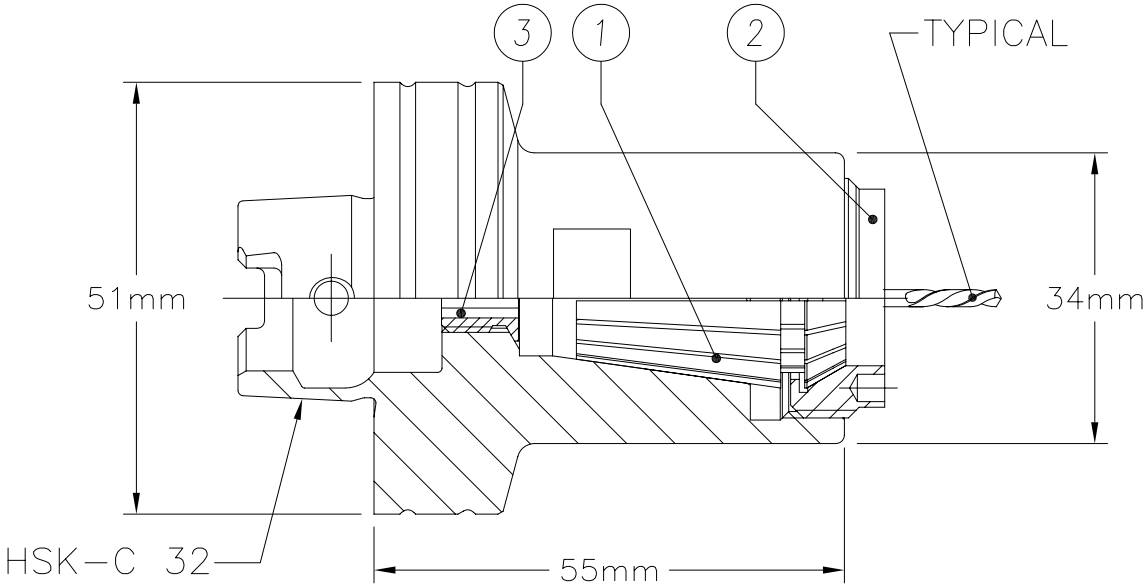
ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1–13mm)	ER20
2	1	CLAMP NUT	920110
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (30mm)	72102 30mm
5*	1	WRENCH PIN FACE	920170
6*	1	HEX KEY	4912 C32

* NOT INCLUDED WITH TOOLHEAD

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SECTION 3: DRILL HOLDERS

DH HSK C32/20 OD 34.....HB92223

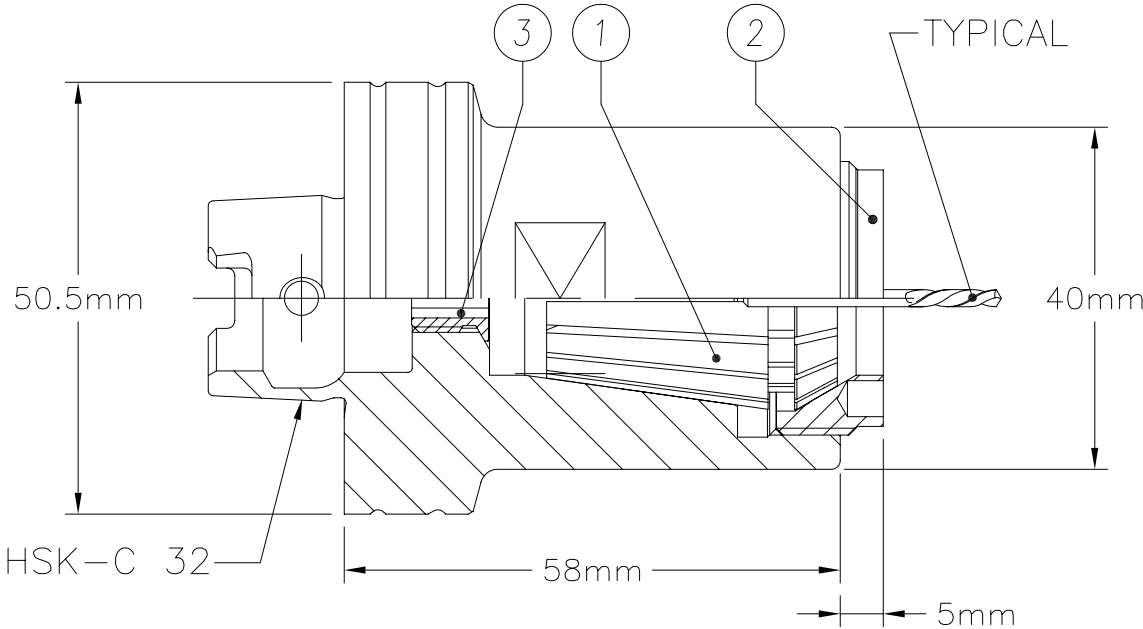


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1–13mm)	ER20
2	1	CLAMP NUT	3320.20000
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (30mm)	72102 30mm
5*	1	WRENCH PIN FACE	920170
6*	1	HEX KEY	4912 C32
7*	1	BALANCE RINGS (FWR 700)	8020.12200

* NOT INCLUDED WITH TOOLHEAD

SECTION 3: DRILL HOLDERS

DH HSK C32/25 OD 40.....HB92224

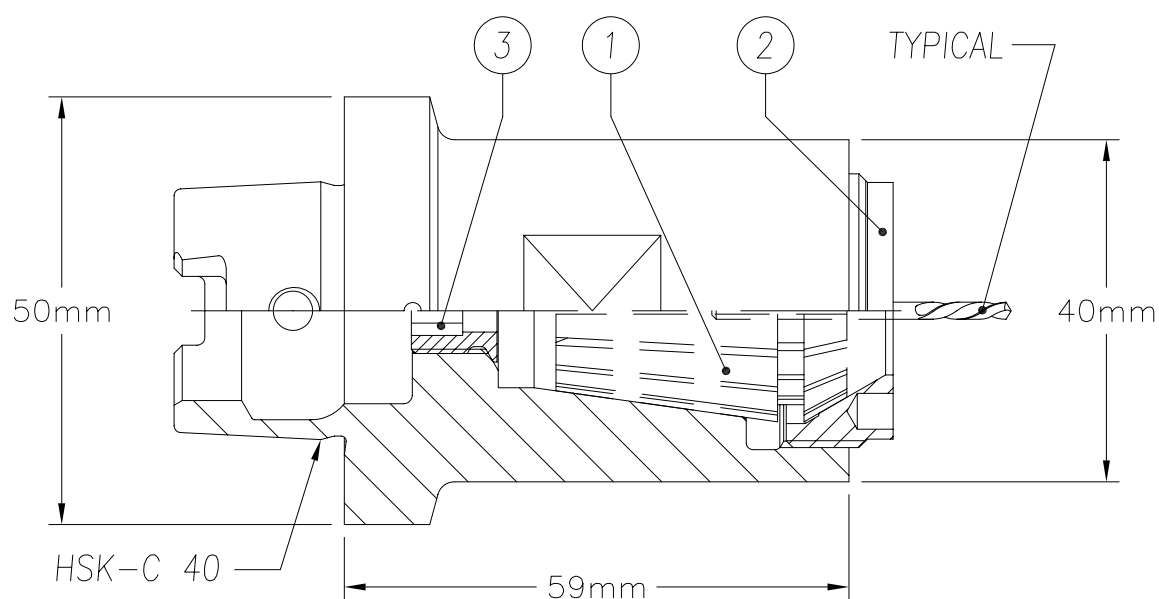


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1–16mm)	ER25
2	1	CLAMP NUT	3325.20000
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (36mm)	72102 36mm
5*	1	WRENCH PIN FACE	925170
6*	1	HEX KEY	4912 C32
7*	1	BALANCE RINGS (FWR 505)	7490.50500

* NOT INCLUDED WITH TOOLHEAD

SECTION 3: DRILL HOLDERS

DH HSK C40/25 OD40.....H93224



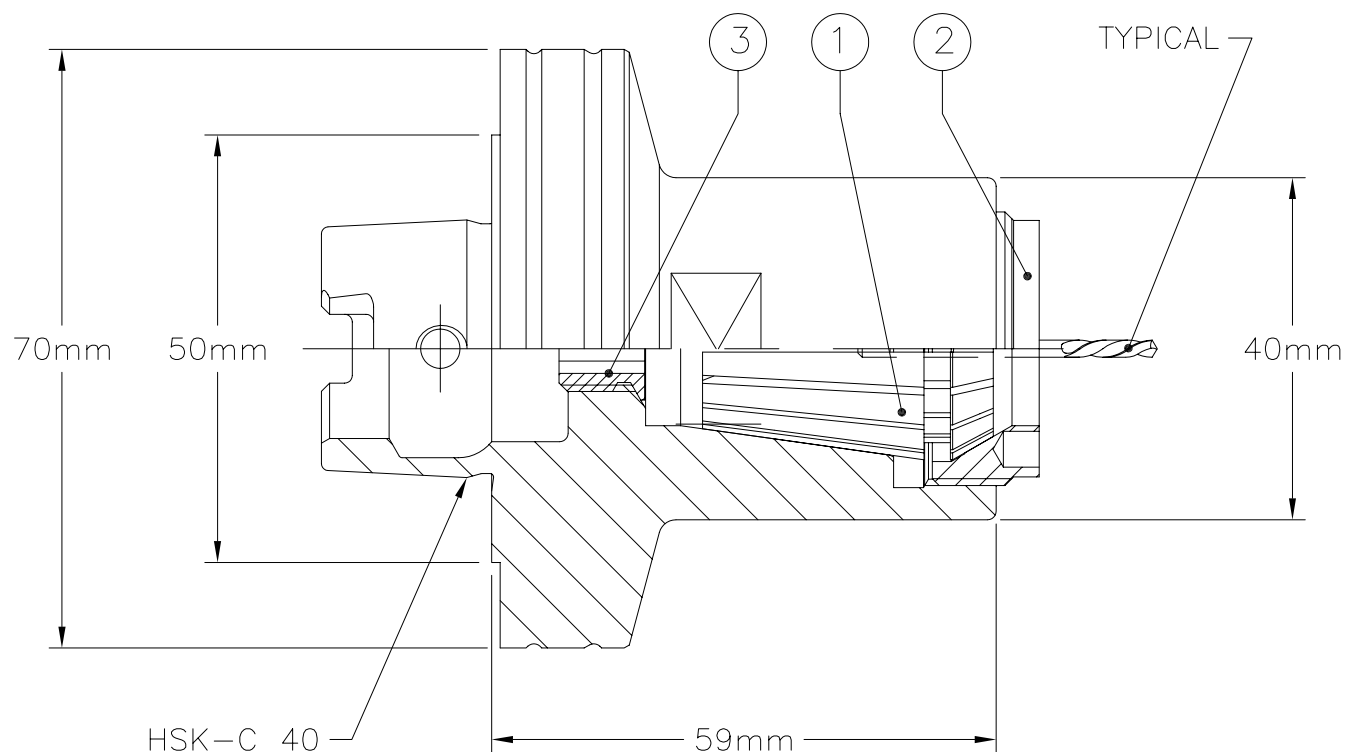
ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1–16mm)	ER25
2	1	CLAMP NUT	925110
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (36mm)	72102–36mm
5*	1	WRENCH PIN FACE	925170
6*	1	HEX KEY	4912 C40

* NOT INCLUDED WITH TOOLHEAD

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SECTION 3: DRILL HOLDERS

DH HSK C40/25 OD40.....HB93224



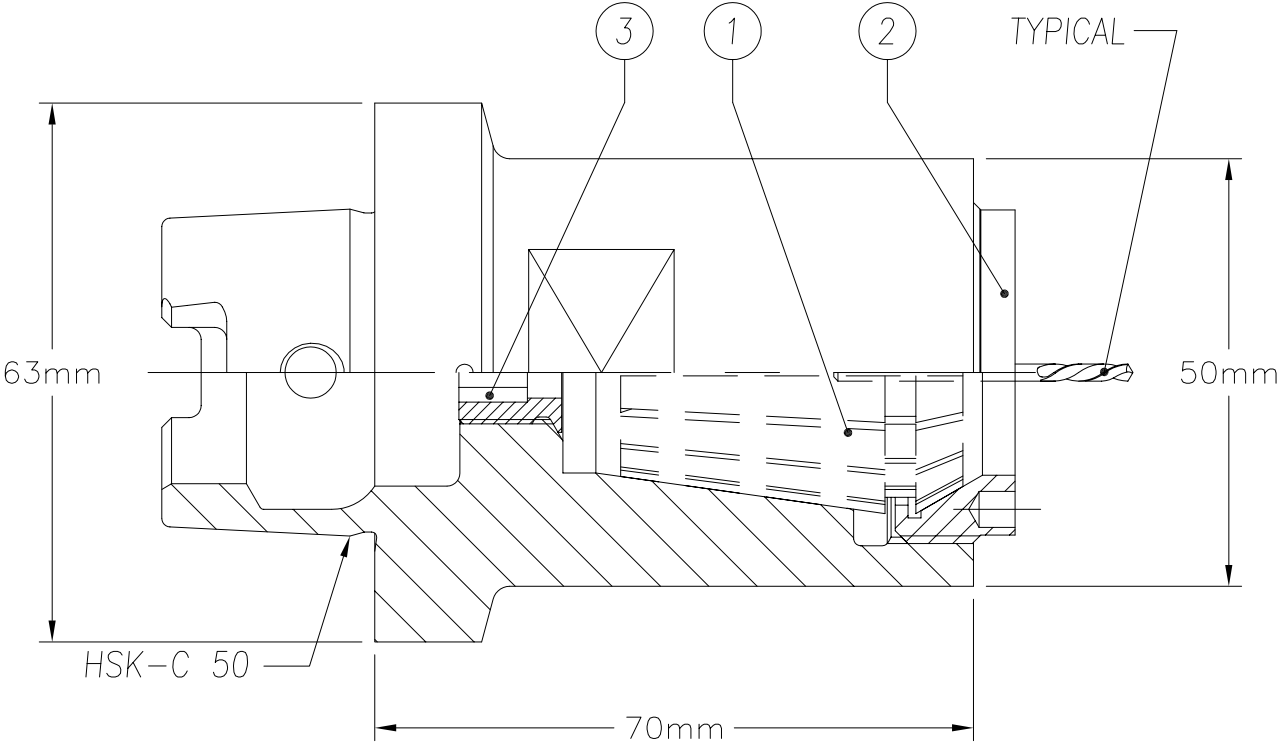
ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 1–16mm)	ER25
2	1	CLAMP NUT	3325.20000
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (36mm)	72102–36mm
5*	1	WRENCH PIN FACE	925170
6*	1	HEX KEY	4912 C40
7*	1	BALANCE RINGS (FRW 700)	8020.12200

* NOT INCLUDED WITH TOOLHEAD

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SECTION 3: DRILL HOLDERS

DH HSK C50/32 OD50.....H94225

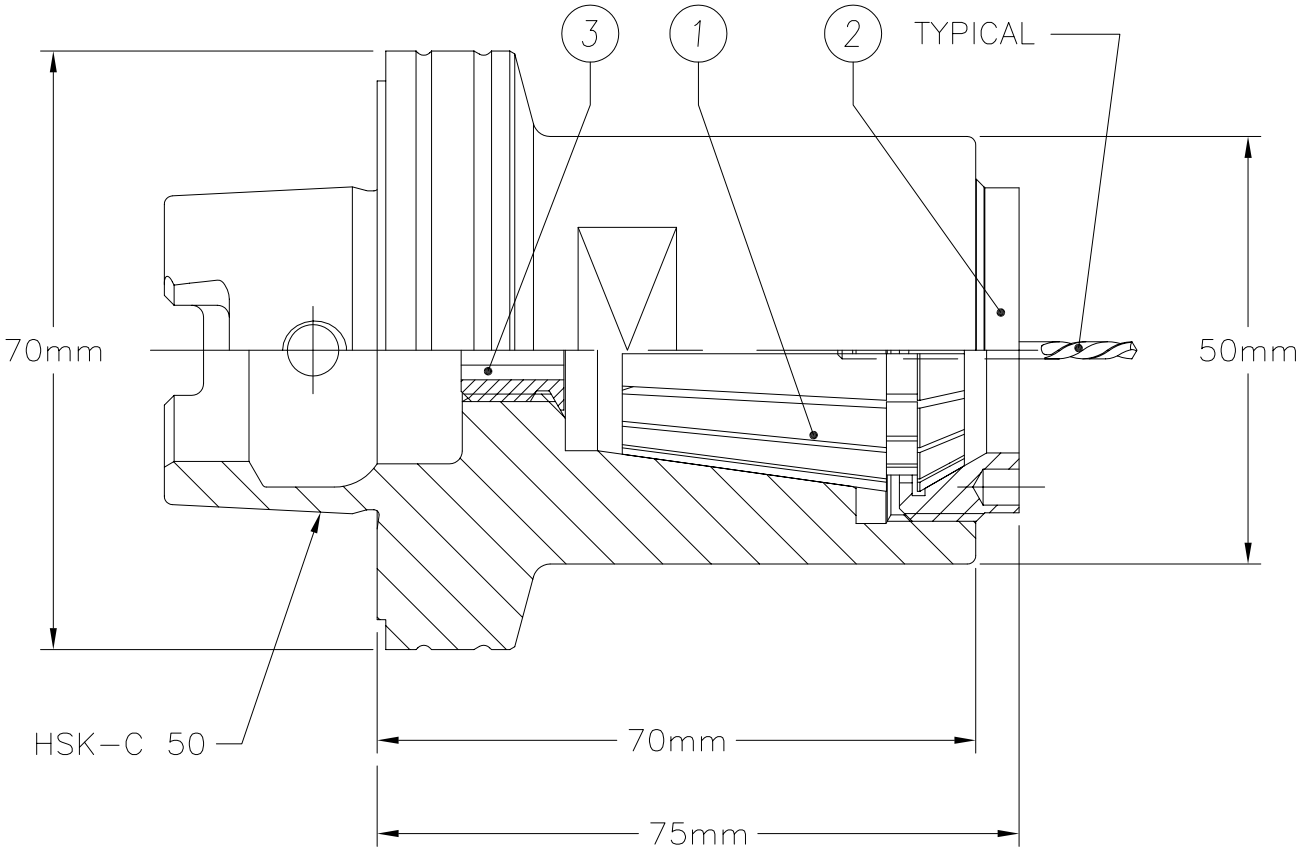


ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 2–20mm)	ER32
2	1	CLAMP NUT	932110
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (41mm)	72102–41mm
5*	1	WRENCH PIN FACE	932170
6*	1	HEX KEY	4912 C50

* NOT INCLUDED WITH TOOLHEAD

SECTION 3: DRILL HOLDERS

DH HSK C50/32 OD50.....HB94225



ITEM	QTY	DESCRIPTION	PART NUMBER
1*	1	COLLET (RANGE 2-20mm)	ER32
2	1	CLAMP NUT	3332.20000
3	1	STOP SCREW	
4*	1	WRENCH OPEN END (41mm)	72102-41mm
5*	1	WRENCH PIN FACE	932170
6*	1	HEX KEY	4912 C50
7*	1	BALANCE RINGS (FRW 700)	8020.12200

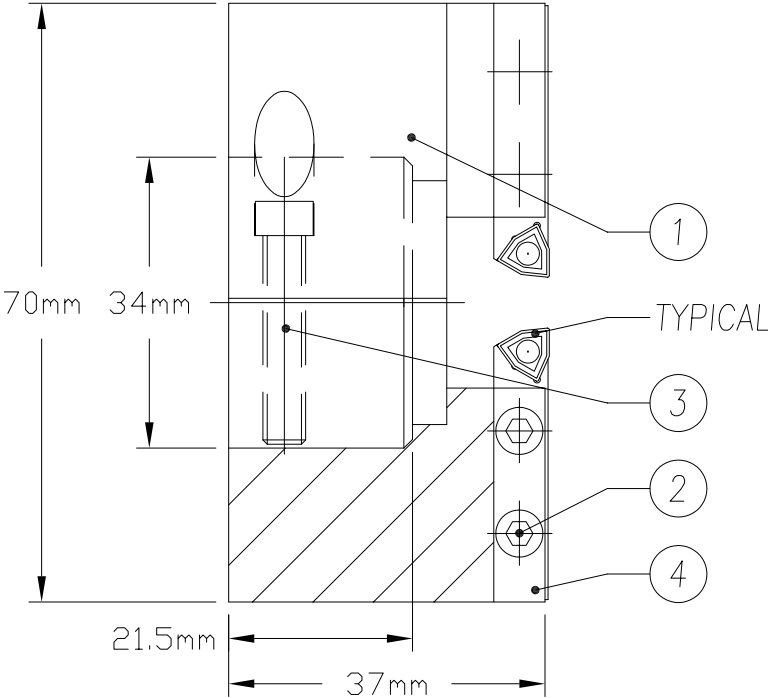
* NOT INCLUDED WITH TOOLHEAD

SECTION 4

CHAMFER HEADS

SECTION 4: CHAMFER HEADS

CH 182/ 1/4 ID34.....5.37.005

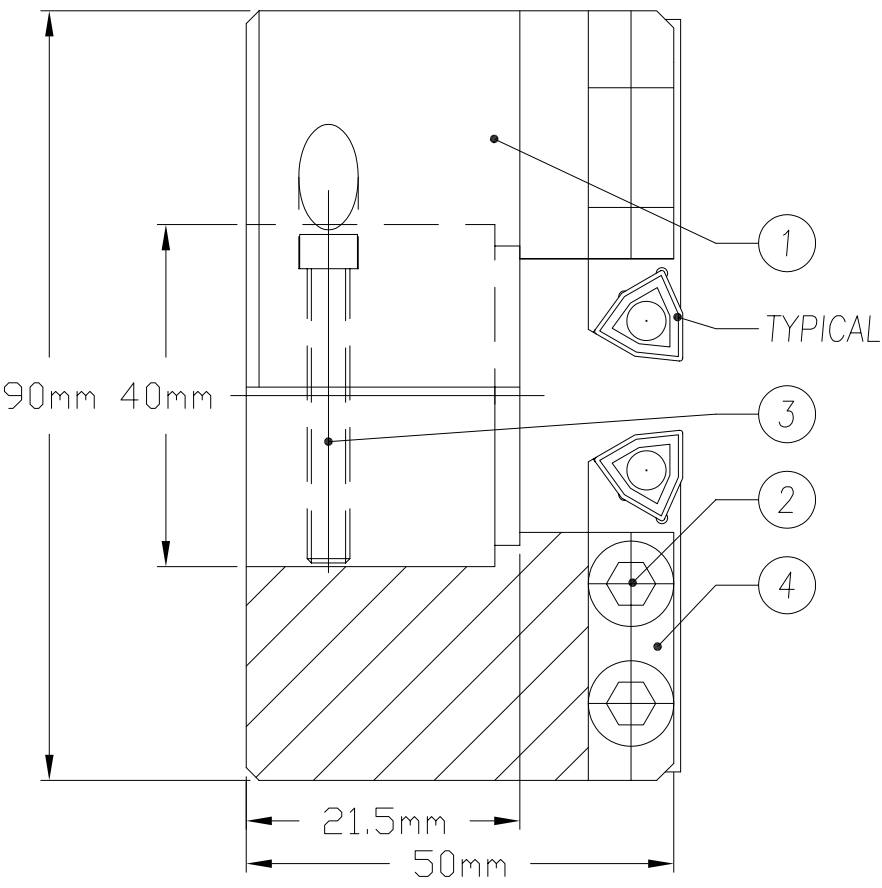


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CHAMFER HEAD	5.37.106
2	4	SOCKET HEAD CAP SCREW	M6 x 16mm
3	1	SOCKET HEAD CAP SCREW	M8 x 25mm
4*	2	TOOL (1/4" MAXIMUM)	

* NOT INCLUDED WITH TOOLHEAD

SECTION 4: CHAMFER HEADS

CH 325/ 3/8 ID40.....5.37.004

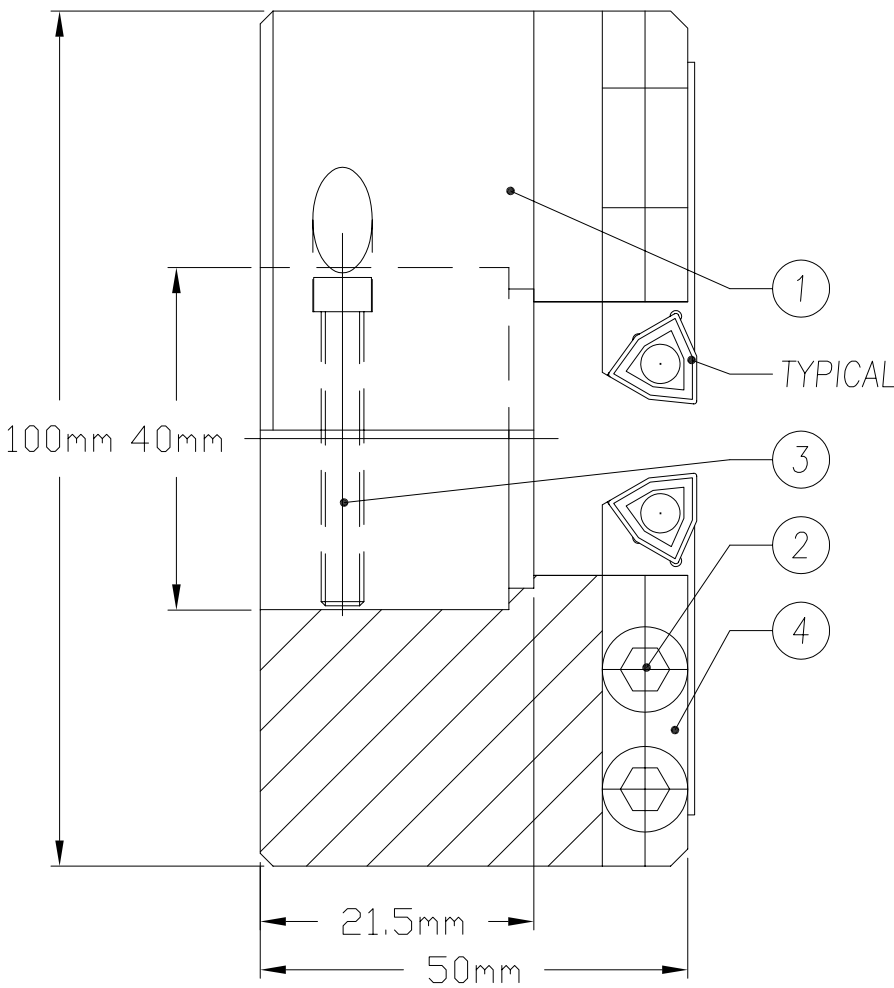


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CHAMFER HEAD	5.37.105-1
2	4	SOCKET HEAD CAP SCREW	M6 x 20mm
3	1	SOCKET HEAD CAP SCREW	M8 x 35mm
4*	2	TOOL (3/8" MAXIMUM)	

* NOT INCLUDED WITH TOOLHEAD

SECTION 4: CHAMFER HEADS

CH 335/ 1/2 ID40.....5.37.003

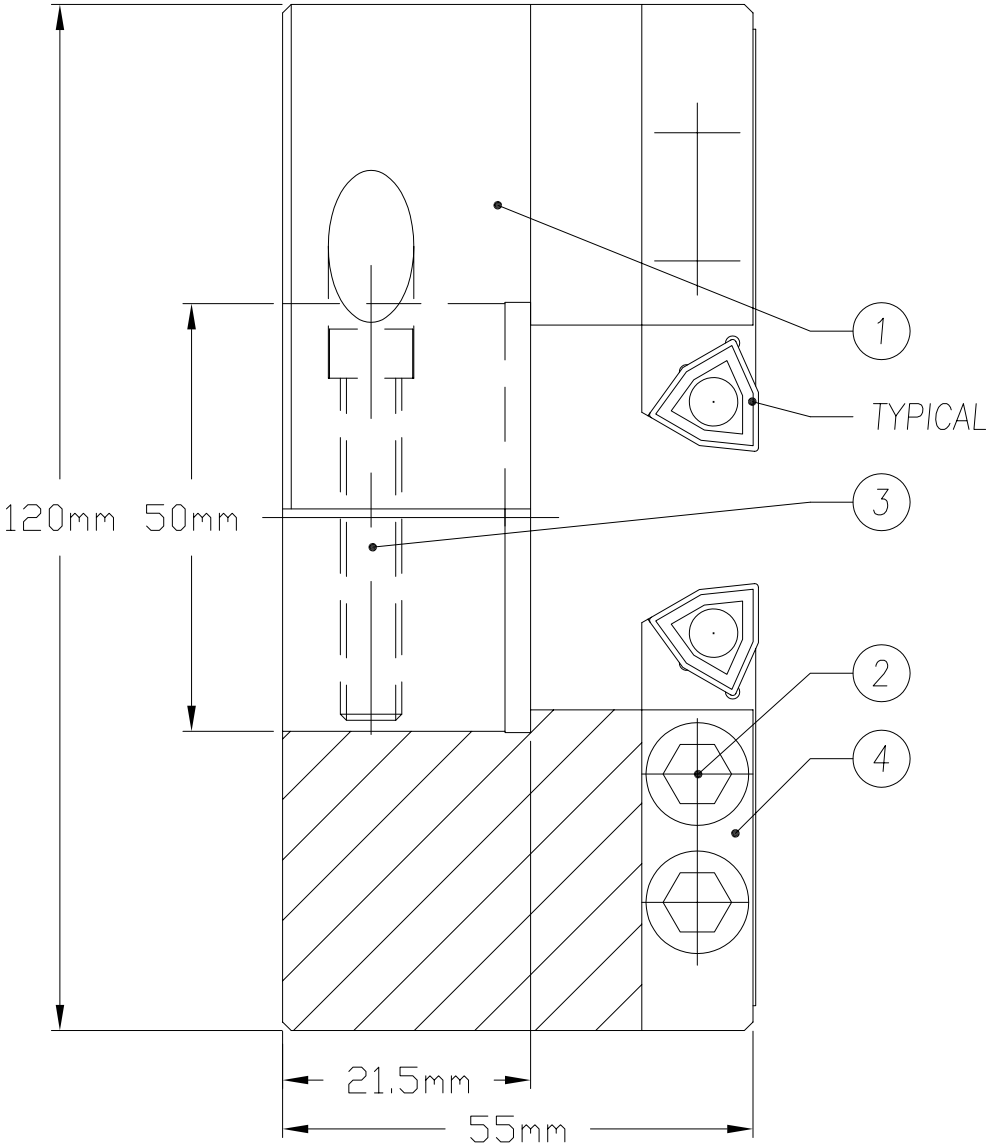


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CHAMFER HEAD	5.37.105
2	4	SOCKET HEAD CAP SCREW	M6 x 20mm
3	1	SOCKET HEAD CAP SCREW	M8 x 35mm
4*	2	TOOL (1/2" MAXIMUM)	

* NOT INCLUDED WITH TOOLHEAD

SECTION 4: CHAMFER HEADS

CH 600/ 1/2 ID50.....6.37.002



ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CHAMFER HEAD	6.37.104
2	4	SOCKET HEAD CAP SCREW	M8 x 20mm
3	1	SOCKET HEAD CAP SCREW	M10 x 40mm
4*	2	TOOL (1/2" MAXIMUM)	

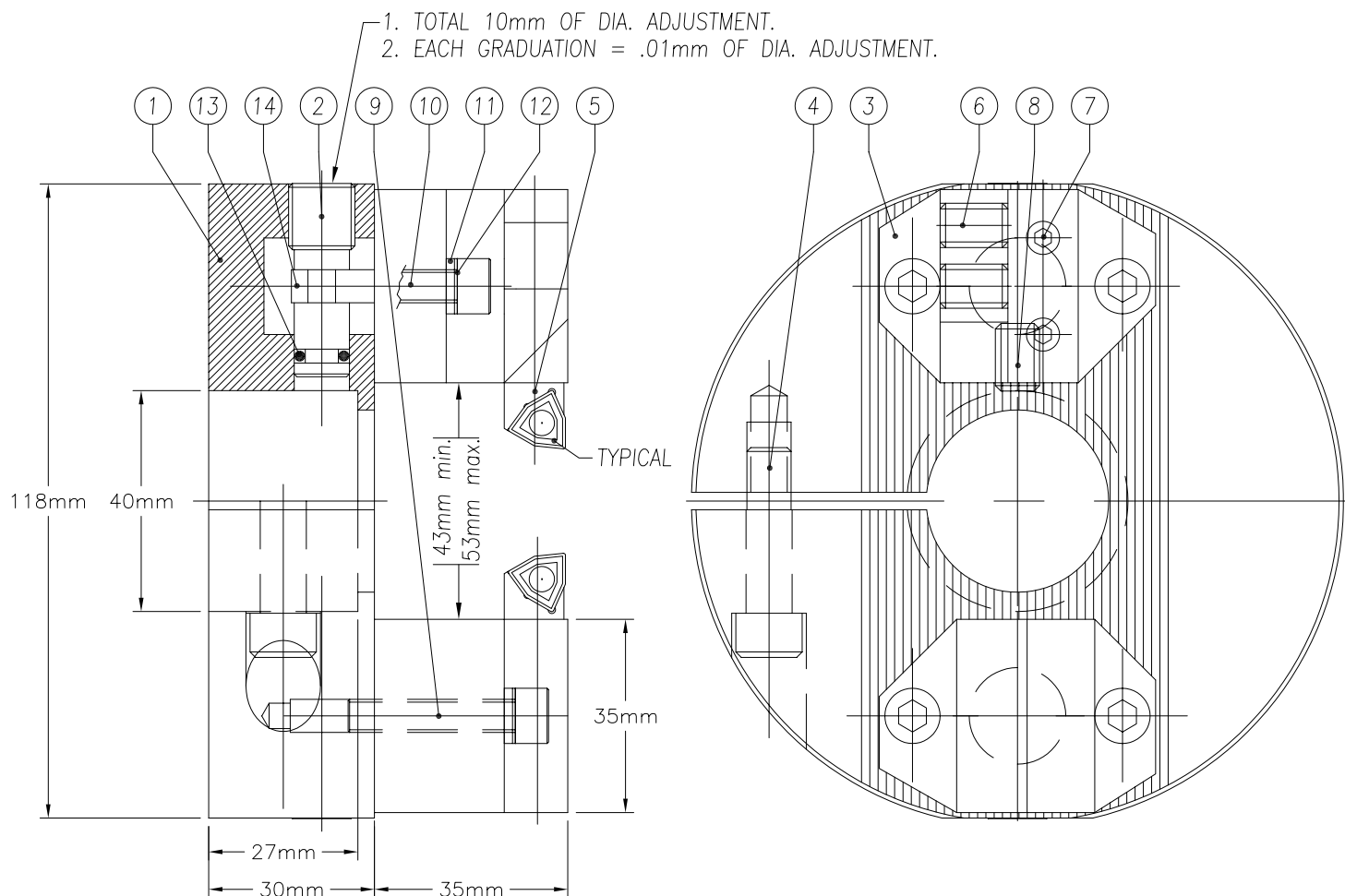
* NOT INCLUDED WITH TOOLHEAD

SECTION 5

**CHAMFER HEADS,
ADJUSTABLE**

SECTION 5: CHAMFER HEADS, ADJUSTABLE

CHA 350/ 1/2 ID40 35.....0.060.0483-35

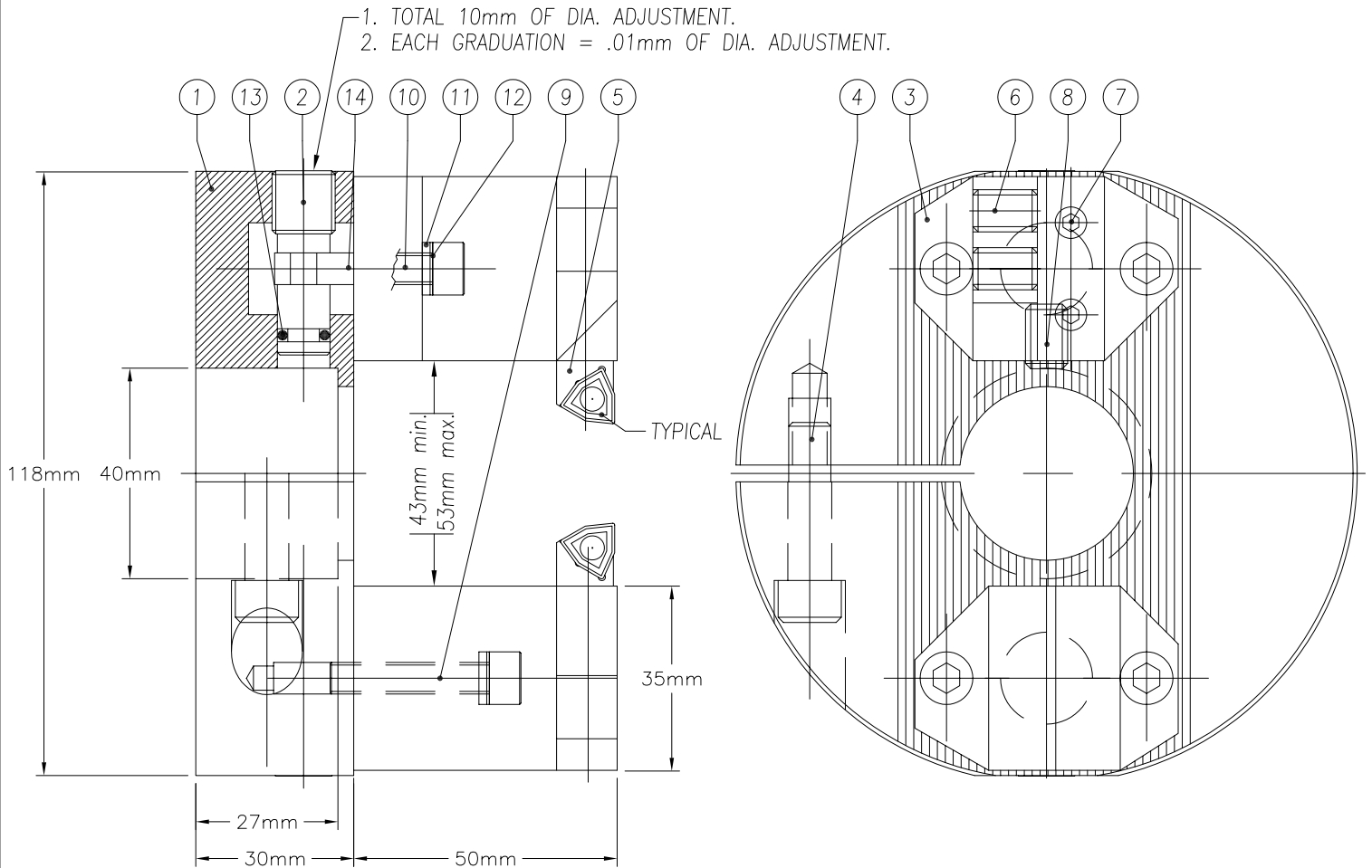


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CHAMFER HEAD ADJUSTABLE	0.060.487
2	2	ADJUSTING DIAL	4915-03
3	2	TOOL HOLDER	4922-35-127
4	1	SOCKET HEAD CAP SCREW	M8 x 30mm
5	2	TOOL SHANK (1/2" MAXIMUM)	
6*	4	SOCKET SET SCREW	M8 x 12mm
7	4	SOCKET SET SCREW	M6 x 6mm
8	2	SOCKET SET SCREW	M6 x 12mm
9	2	SOCKET HEAD CAP SCREW	M6 x 30mm
10	2	SOCKET HEAD CAP SCREW	M6 x 22mm
11	4	SPACER	4911-19
12	4	SPRING WASHER	212748 M6
13	2	O-RING	ORM 0060-20
14	2	FORK	4915-10

* NOT INCLUDED WITH TOOLHEAD

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CHA 375/ 1/2 ID40 50.....0.060.0483-50

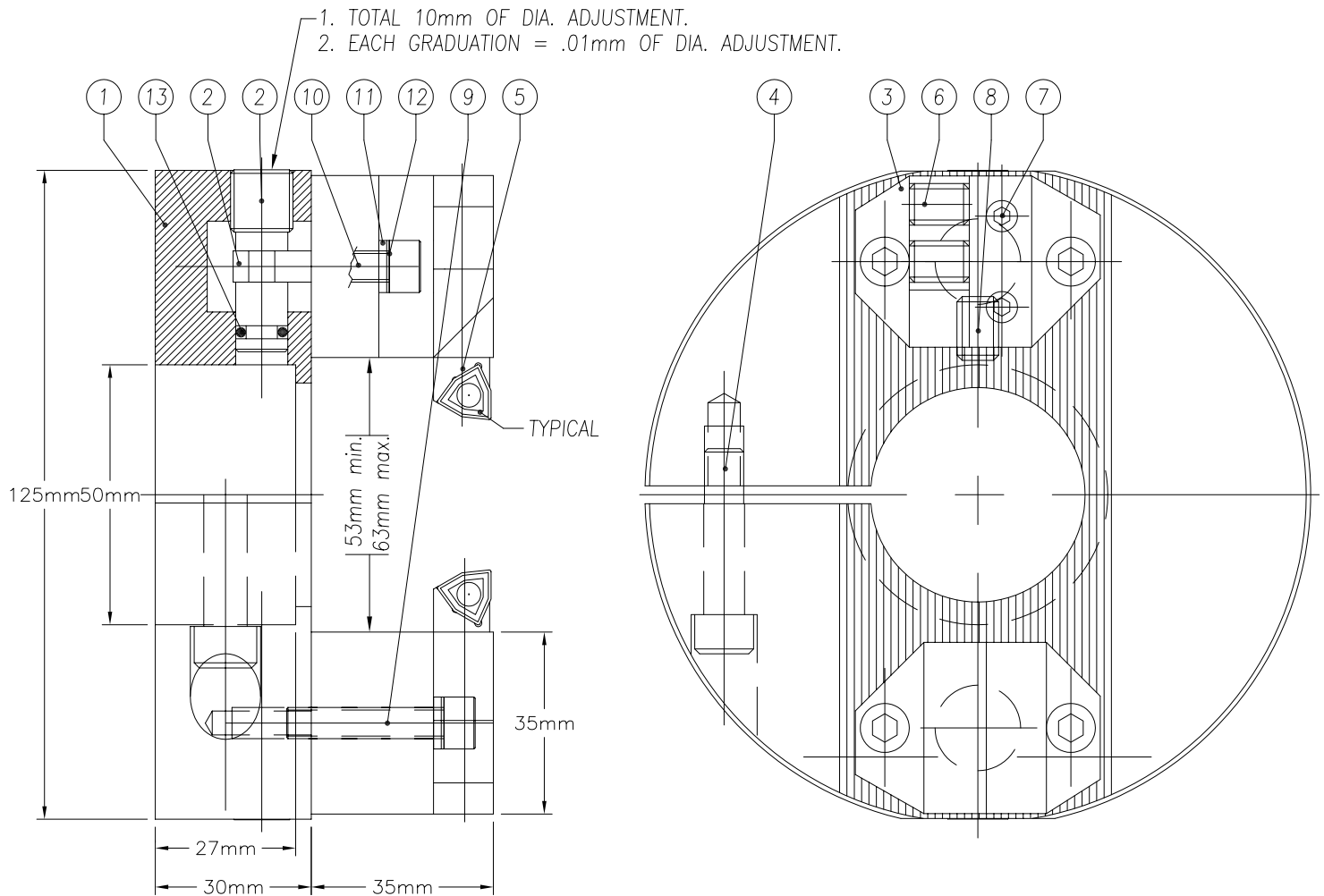


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CHAMFER HEAD ADJUSTABLE	0.060.487
2	2	ADJUSTING DIAL	4915-03
3	2	TOOL HOLDER	4922-50-127
4	1	SOCKET HEAD CAP SCREW	M8 x 30mm
5	2	TOOL SHANK (1/2" MAXIMUM)	
6*	4	SOCKET SET SCREW	M8 x 12mm
7	4	SOCKET SET SCREW	M6 x 6mm
8	2	SOCKET SET SCREW	M6 x 12mm
9	2	SOCKET HEAD CAP SCREW	M6 x 30mm
10	2	SOCKET HEAD CAP SCREW	M6 x 22mm
11	4	SPACER	4911-19
12	4	SPRING WASHER	212748 M6
13	2	O-RING	ORM 0060-20
14	2	FORK	4915-10

* NOT INCLUDED WITH TOOLHEAD

SECTION 5: CHAMFER HEADS, ADJUSTABLE

CHA 650/ 1/2 ID50 35.....0.060.0486-35

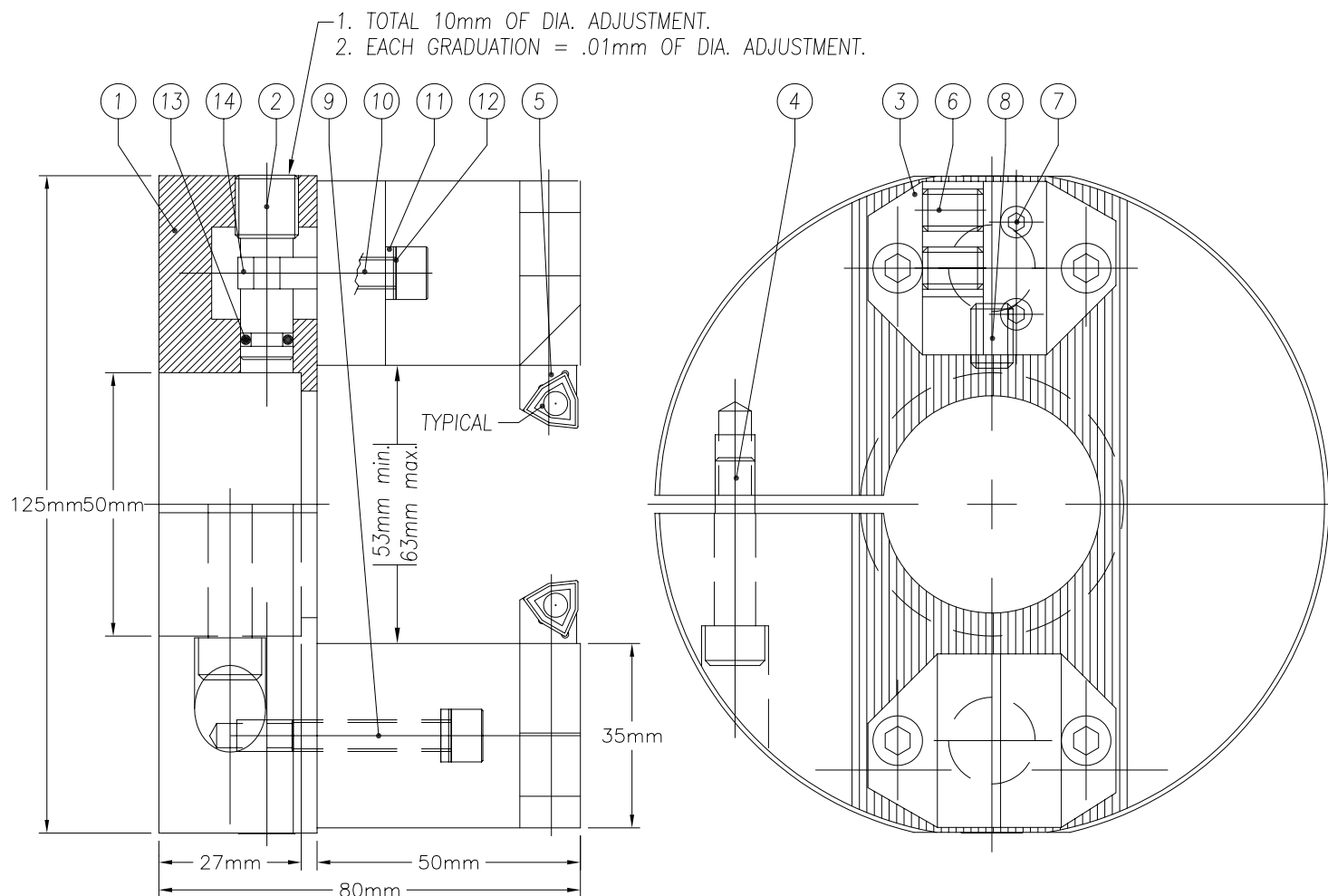


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CHAMFER HEAD ADJUSTABLE	0.060.489
2	2	ADJUSTING DIAL	4915-03
3	2	TOOL HOLDER	4922-35-127
4	1	SOCKET HEAD CAP SCREW	M8 x 30mm
5	2	TOOL SHANK (1/2" MAXIMUM)	
6*	4	SOCKET SET SCREW	M8 x 12mm
7	4	SOCKET SET SCREW	M6 x 6mm
8	2	SOCKET SET SCREW	M6 x 12mm
9	2	SOCKET HEAD CAP SCREW	M6 x 30mm
10	2	SOCKET HEAD CAP SCREW	M6 x 22mm
11	4	SPACER	4911-19
12	4	SPRING WASHER	212748 M6
13	2	O-RING	ORM 0060-20
14	2	FORK	4915-10

* NOT INCLUDED WITH TOOLHEAD

SECTION 5: CHAMFER HEADS, ADJUSTABLE

CHA 675/ 1/2 ID50 50.....0.060.0486-50



ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CHAMFER HEAD ADJUSTABLE	0.060.489
2	2	ADJUSTING DIAL	4915-03
3	2	TOOL HOLDER	4922-50-127
4	1	SOCKET HEAD CAP SCREW	M8 x 30mm
5	2	TOOL SHANK (1/2" MAXIMUM)	
6*	4	SOCKET SET SCREW	M8 x 12mm
7	4	SOCKET SET SCREW	M6 x 6mm
8	2	SOCKET SET SCREW	M6 x 12mm
9	2	SOCKET HEAD CAP SCREW	M6 x 30mm
10	2	SOCKET HEAD CAP SCREW	M6 x 22mm
11	4	SPACER	4911-19
12	4	SPRING WASHER	212748 M6
13	2	O-RING	ORM 0060-20
14	2	FORK	4915-10

* NOT INCLUDED WITH TOOLHEAD

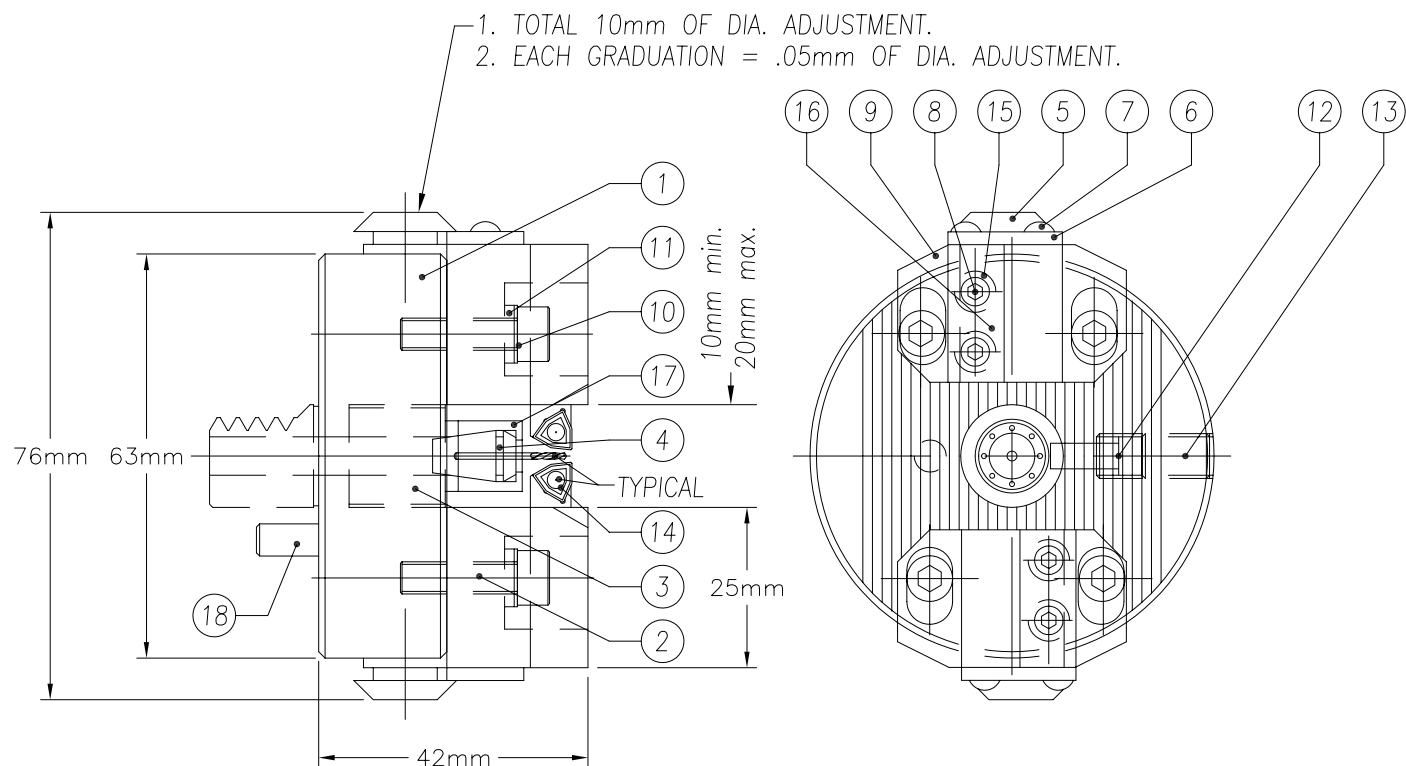
REV 9/12/2003

SECTION 6

TURNING HEADS ROUGH

SECTION 6: TURNING HEADS

TH QC82-63/8.....82933-952



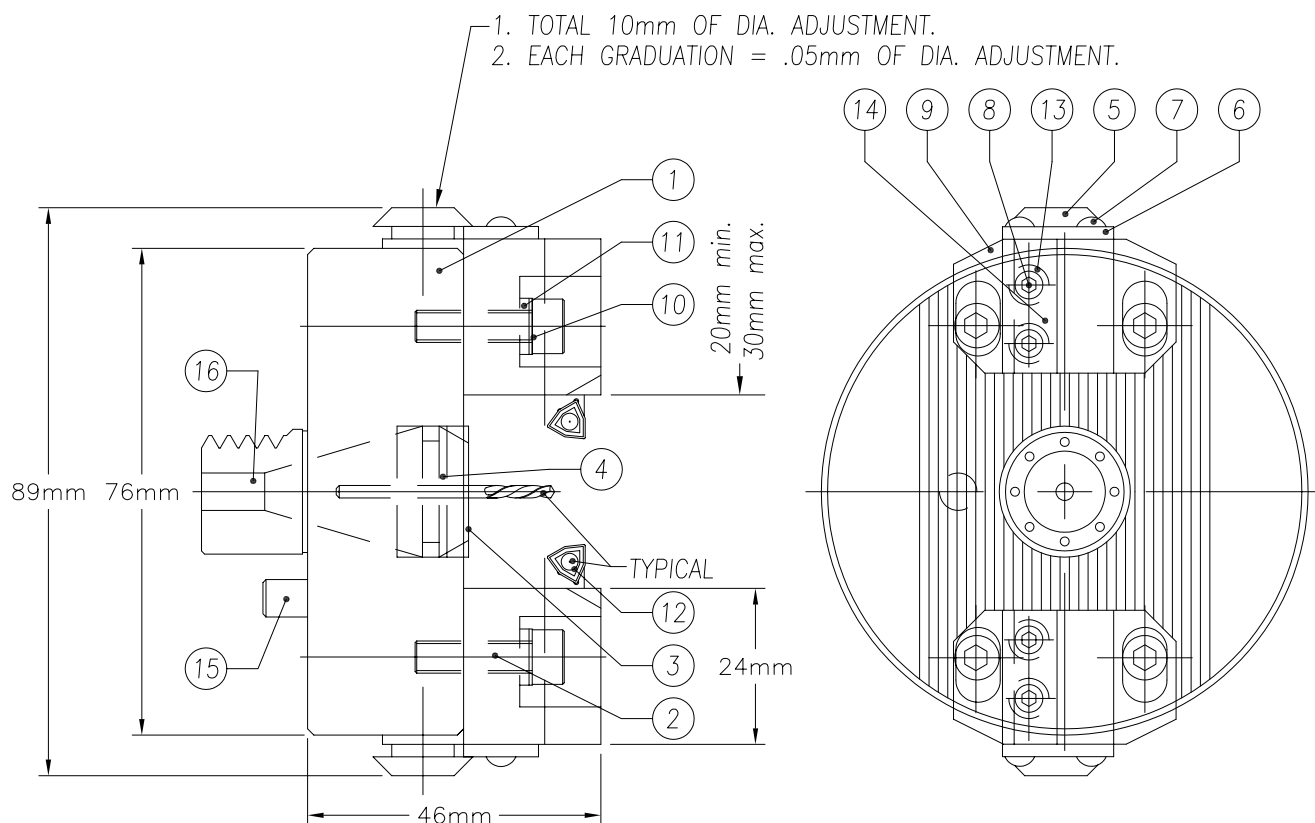
USE TORQUE WRENCH #S-0-060-048-1

ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	ROUGH TURNING HEAD	PCM 82933
2	4	SOCKET HEAD CAP SCREW	M5 x 18mm
3	1	DRILL HOLDER	PCM 4933-19
4*	1	COLLET (RANGE .05-5mm)	ER8
5	2	ADJUSTING DIAL	4931-03
6	2	PLATE	4933-04
7	4	BUTTON HEAD CAP SCREW	M4 x 6mm
8	4	SOCKET SET SCREW	M5 x 10mm
9	2	TOOL HOLDER	PCM 4933-952
10	4	SPRING WASHER	212748 M5
11	4	SPACER	4931-06
12	1	BRASS SHOE	4931-07
13	1	SOCKET SET SCREW	M6 x 10mm
14*	2	TOOL SHANK(10mm MAXIMUM)	
15*	4	O-RING	ORM 0045-15
16	2	WEDGE BLOCK	4933-08
17	1	PIN FACE NUT	908100
18	1	DOWEL PIN	5 x 20mm
19	1	WRENCH PIN FACE ER8A	908160

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH QC 83-78/16.....83944-952



USE TORQUE WRENCH #S-0-060-048-2

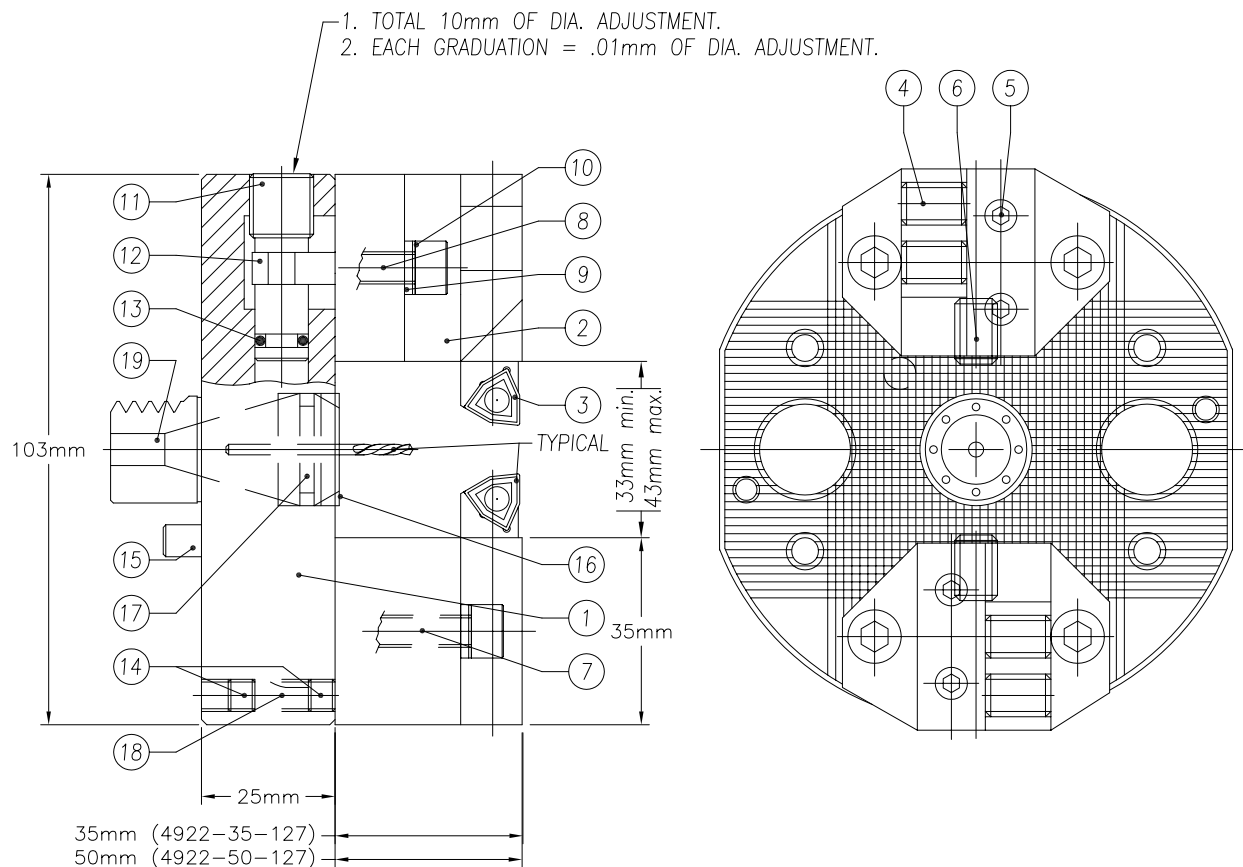
ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	ROUGH TURNING HEAD	PCM 83944
2	4	SOCKET HEAD CAP SCREW	M5 x 18mm
3	1	PIN FACE NUT ER16A	916110
4*	1	COLLET (RANGE .5-10mm)	ER16
5	2	ADJUSTING DIAL	4931-03
6	2	PLATE	4933-04
7	4	BUTTON HEAD CAP SCREW	M4 x 6mm
8	4	SOCKET SET SCREW	M5 x 10mm
9	2	TOOL HOLDER	PCM 4933-952
10	4	SPRING WASHER	212748 M5
11	4	SPACER	4931-06
12*	2	TOOL SHANK(10mm MAXIMUM)	
13*	4	O-RING	ORM 0045-15
14	2	WEDGE BLOCK	4933-08
15	1	DOWEL PIN	6 x 20mm
16	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
17	1	WRENCH PIN FACE ER16A	916170

* NOT INCLUDED WITH TOOLHEAD

REV 12/03/2003

SECTION 6: TURNING HEADS

TH QC 83-103/16.....83945-127



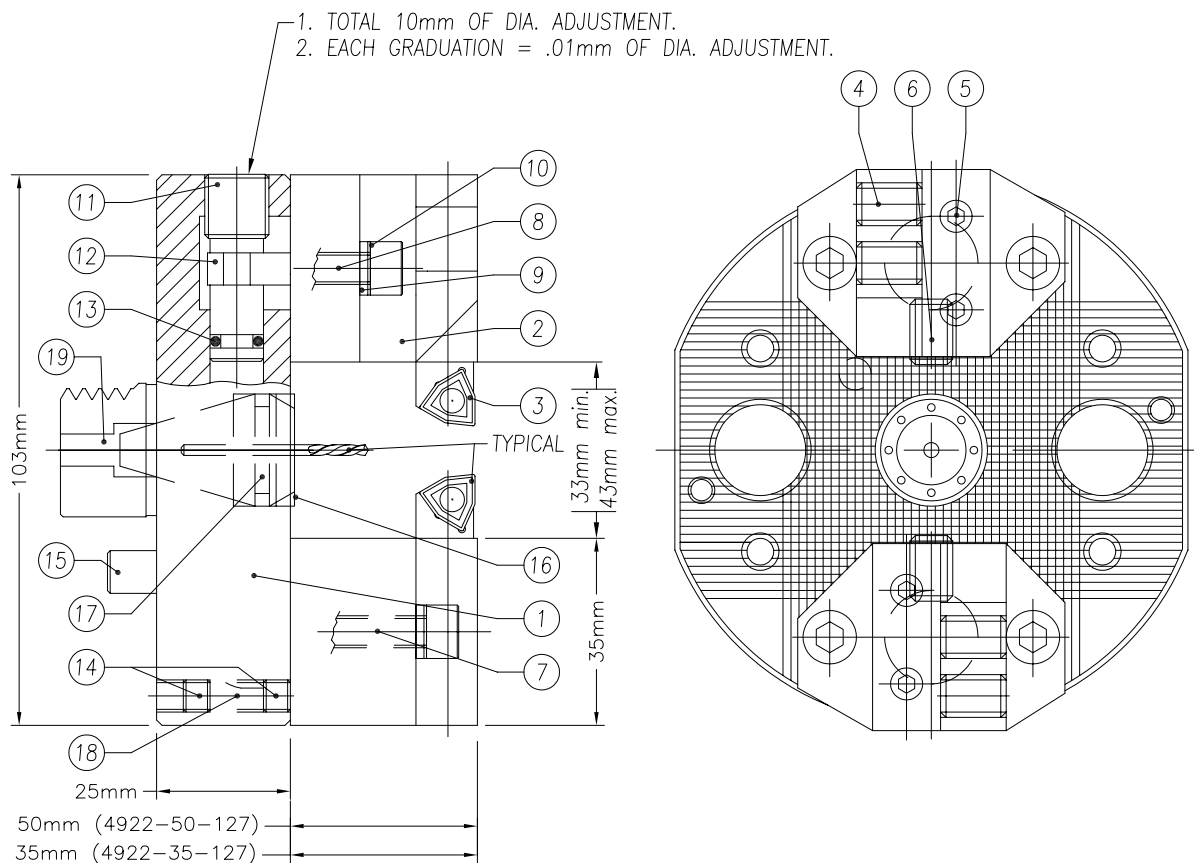
USE TORQUE WRENCH #S-0-060-048-02

ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	ROUGH TURNING HEAD	PCM 83945
2a	2	TOOL HOLDER (35mm length)	4922-35-127
2b	2	TOOL HOLDER (50mm length)	4922-50-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 30mm
8	2	SOCKET HEAD CAP SCREW	M6 x 22mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	1	DOWEL PIN	6 x 20mm
16	1	PIN FACE NUT	916110
17*	1	COLLET (RANGE 0.5-10mm)	ER16
18	2	BRASS SHOE	4915-26
19	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
20	1	WRENCH PIN FACE ER16A	916170

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH QC 84-103/16.....84945-127



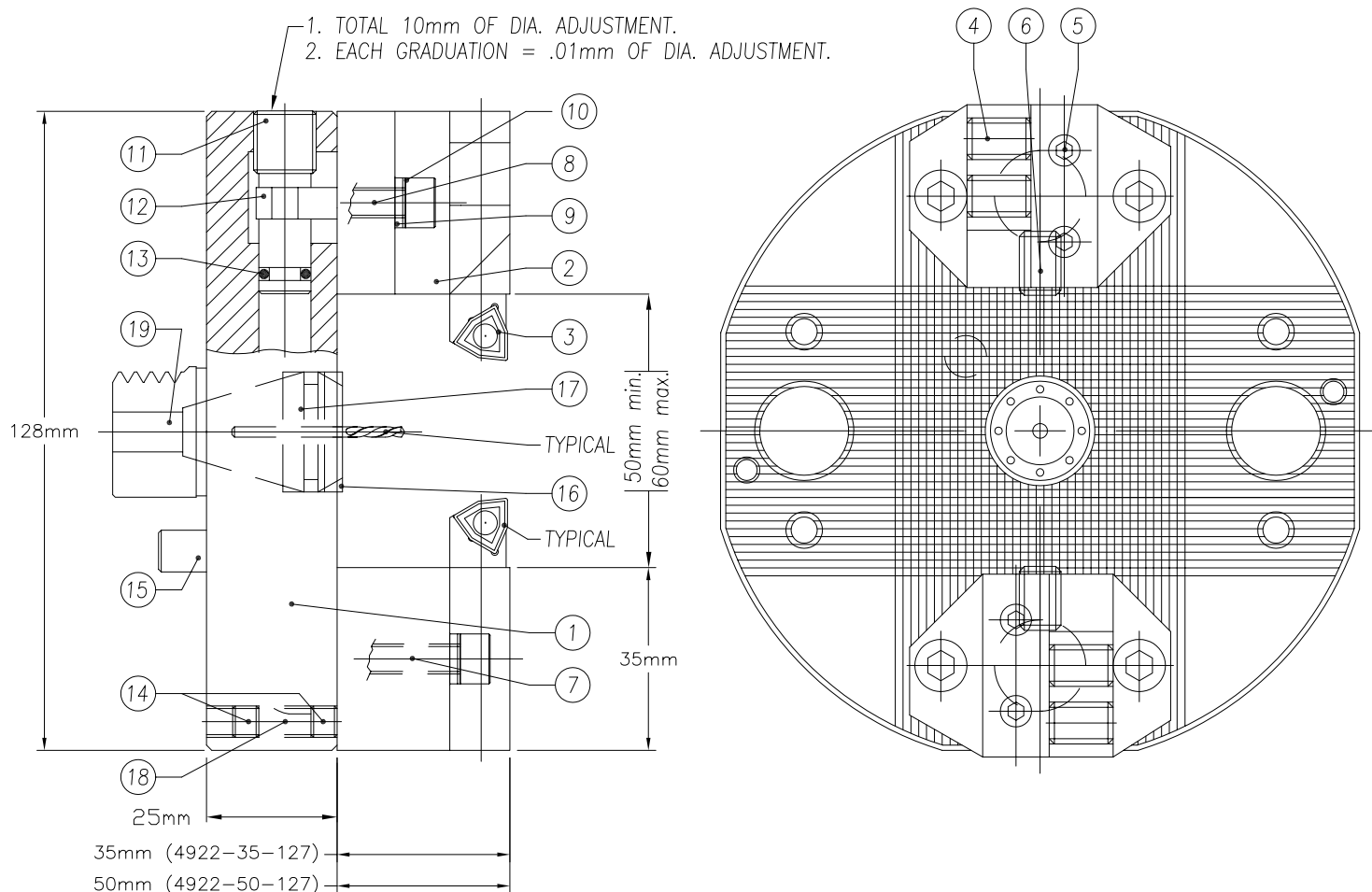
USE TORQUE WRENCH #S-0-060-048-03

ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	ROUGH TURNING HEAD	PCM 84945
2a	2	TOOL HOLDER (35mm length)	4922-35-127
2b	2	TOOL HOLDER (50mm length)	4922-50-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 30mm
8	2	SOCKET HEAD CAP SCREW	M6 x 22mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	1	DOWEL PIN	8 x 20mm
16	1	PIN FACE NUT	916110
17*	1	COLLET (RANGE 0.5-10mm)	ER16
18	2	BRASS SHOE	4915-26
19	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
20	1	WRENCH PIN FACE ER16A	916170

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH QC 84-128/20.....84946-127



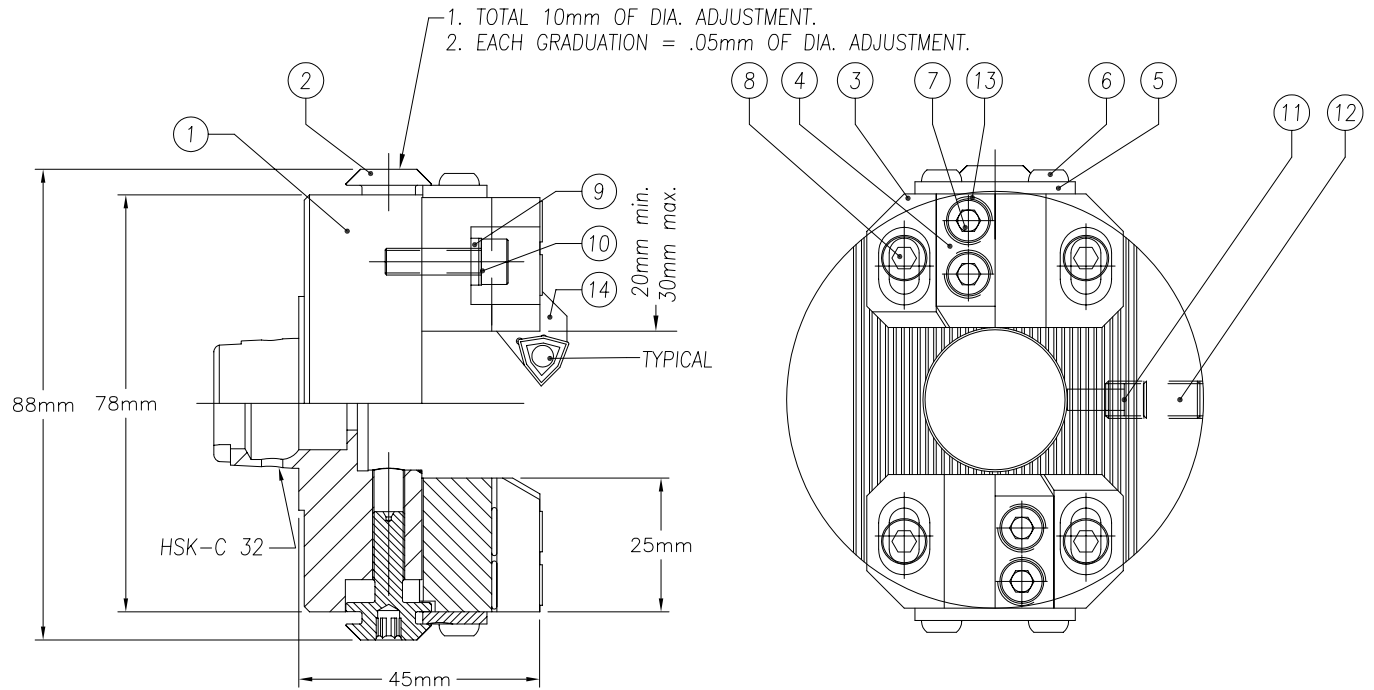
USE TORQUE WRENCH #S-0-060-048-03

ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	ROUGH TURNING HEAD	PCM 84946
2a	2	TOOL HOLDER (35mm length)	4922-35-127
2b	2	TOOL HOLDER (50mm length)	4922-50-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 30mm
8	2	SOCKET HEAD CAP SCREW	M6 x 22mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	1	DOWEL PIN	8 x 20mm
16	1	PIN FACE NUT	920110
17*	1	COLLET (RANGE 1-13mm)	ER20
18	2	BRASS SHOE	4915-26
19	1	STOP SCREW M8 x 1 With Nylon	1100-088-P03
20	1	WRENCH PIN FACE ER20A	920170

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH HSK C32-78.....H92924-952

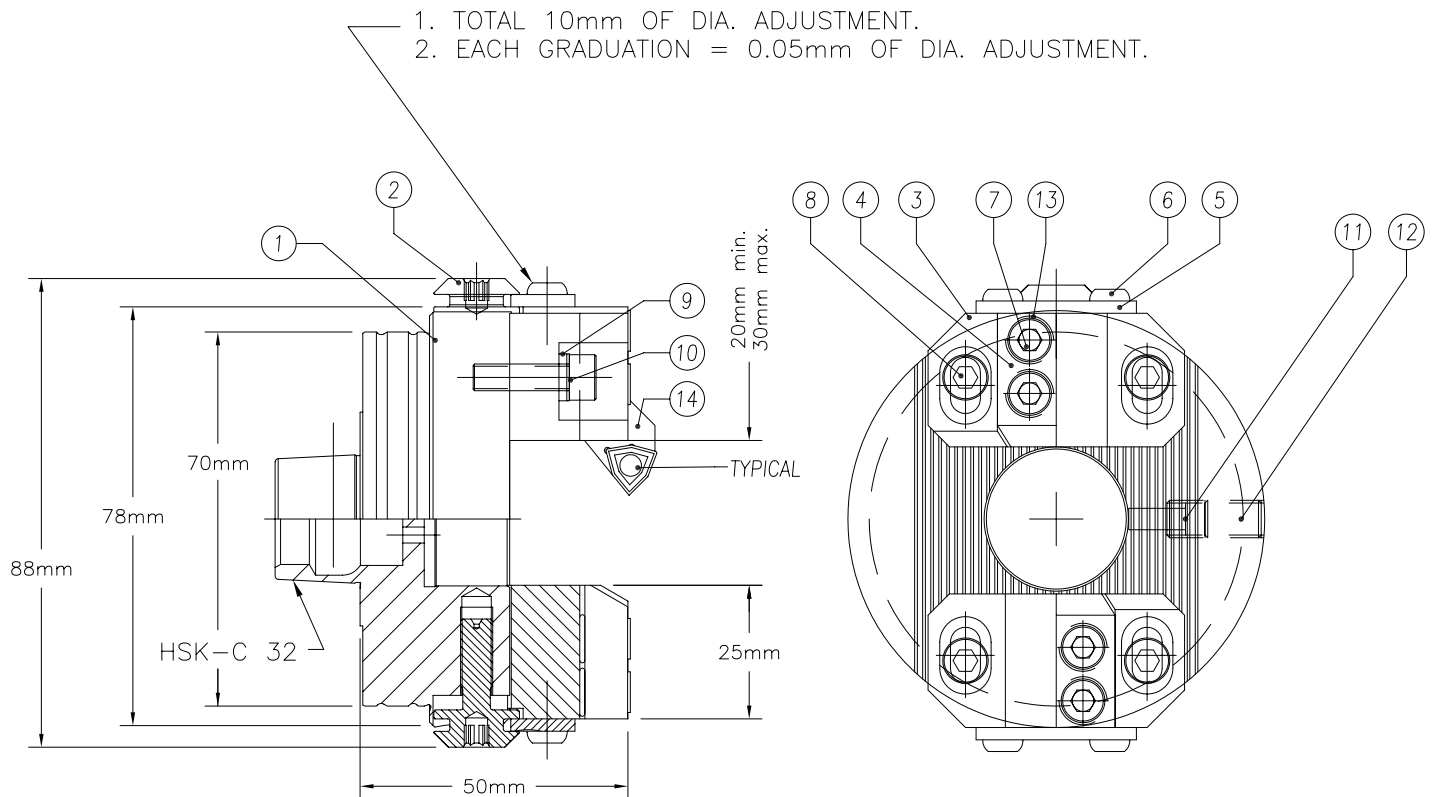


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	ROUGH TURNING HEAD	PCM H92924-95
2	2	ADJUSTING DIAL	4931-03
3	2	TOOL HOLDER	PCM 4933-952
4	2	WEDGE BLOCK	4933-08
5	2	PLATE	4933-04
6	4	BUTTON HEAD CAP SCREW	M4 x 6mm
7	4	SOCKET SET SCREW	M5 x 10mm
8	4	SOCKET HEAD CAP SCREW	M5 x 18mm
9	4	SPACER	4931-06
10	4	SPRING WASHER	212748 M5
11	1	BRASS SHOE	4931-07
12	1	SOCKET SET SCREW	M6 x 10mm
13	4	O-RING	ORM 0045-15
14*	2	TOOL SHANK(10mm MAXIMUM)	

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH HSK C32-78.....HB92924-952



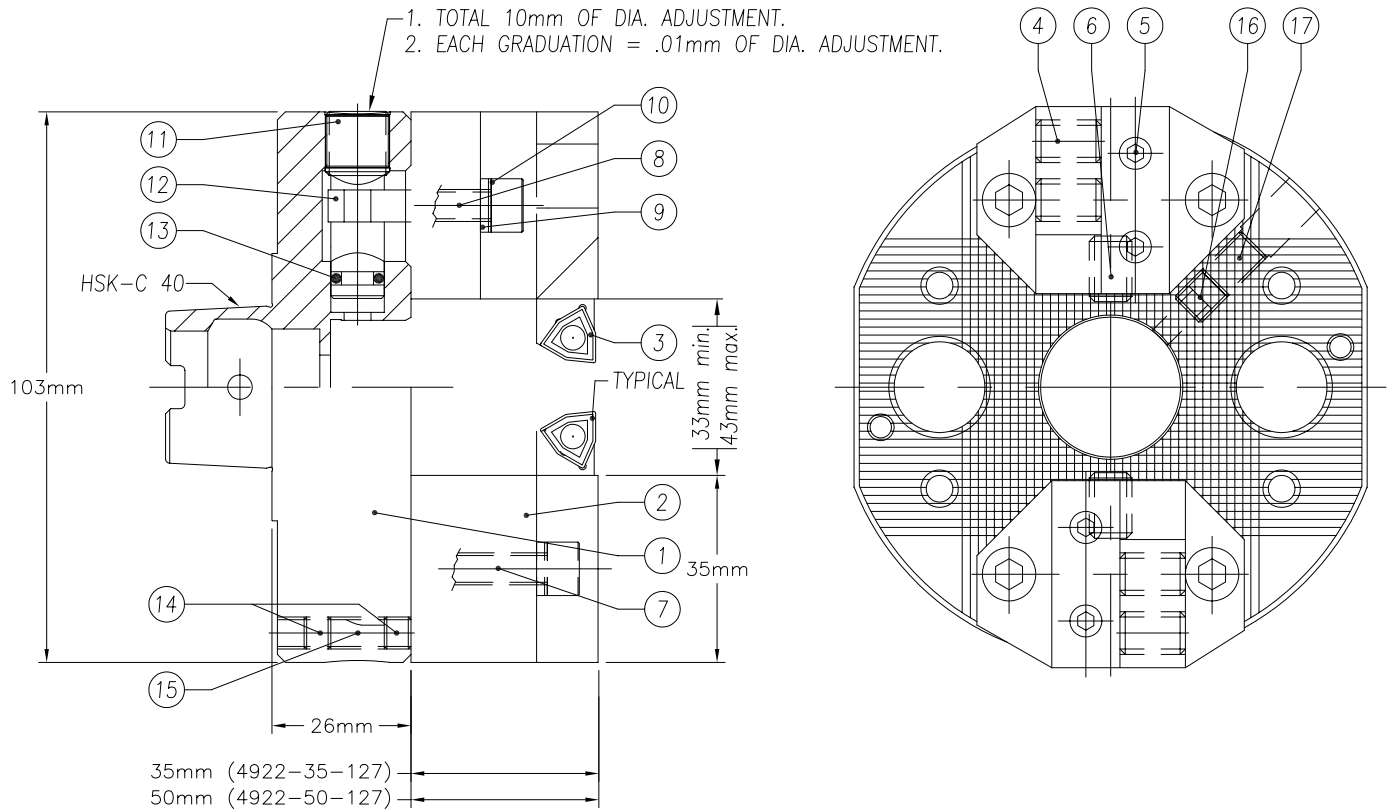
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	ROUGH TURNING HEAD	PCM H92924-95
2	2	ADJUSTING DIAL	4931-03
3	2	TOOL HOLDER	PCM 4933-952
4	2	WEDGE BLOCK	4933-08
5	2	PLATE	4933-04
6	4	BUTTON HEAD CAP SCREW	M4 x 6mm
7	4	SOCKET SET SCREW	M5 x 10mm
8	4	SOCKET HEAD CAP SCREW	M5 x 18mm
9	4	SPACER	4931-06
10	4	SPRING WASHER	212748 M5
11	1	BRASS SHOE	4931-07
12	1	SOCKET SET SCREW	M6 x 10mm
13	4	O-RING	ORM 0045-15
14*	2	TOOL SHANK (10mm MAXIMUM)	
15*	1	BALANCE RINGS (FWR 700)	8020.12200

* NOT INCLUDED WITH TOOLHEAD

REV 12/4/2003

SECTION 6: TURNING HEADS

TH HSK C40-103.....H93925-127

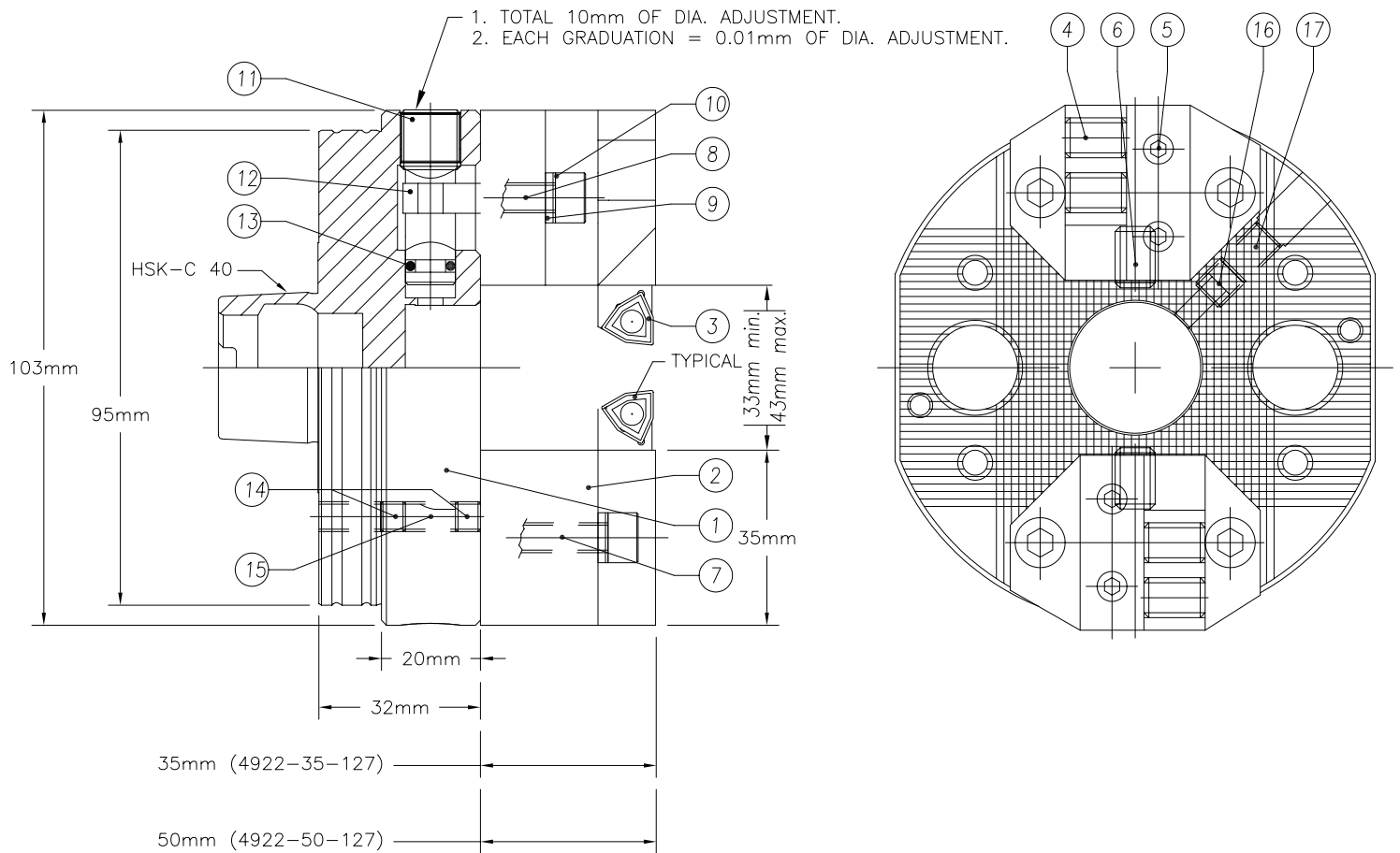


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM H93925-127
2a	2	TOOLHOLDER (35mm Length)	4922-35-127
2b	2	TOOLHOLDER (50mm Length)	4922-50-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 30mm
8	2	SOCKET HEAD CAP SCREW	M6 x 22mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	2	BRASS SHOE	4915-26
16	1	BRASS PIN	4915-28
17	1	SOCKET SET SCREW	M8 x 10mm

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH HSK C40-103.....HB93925-127



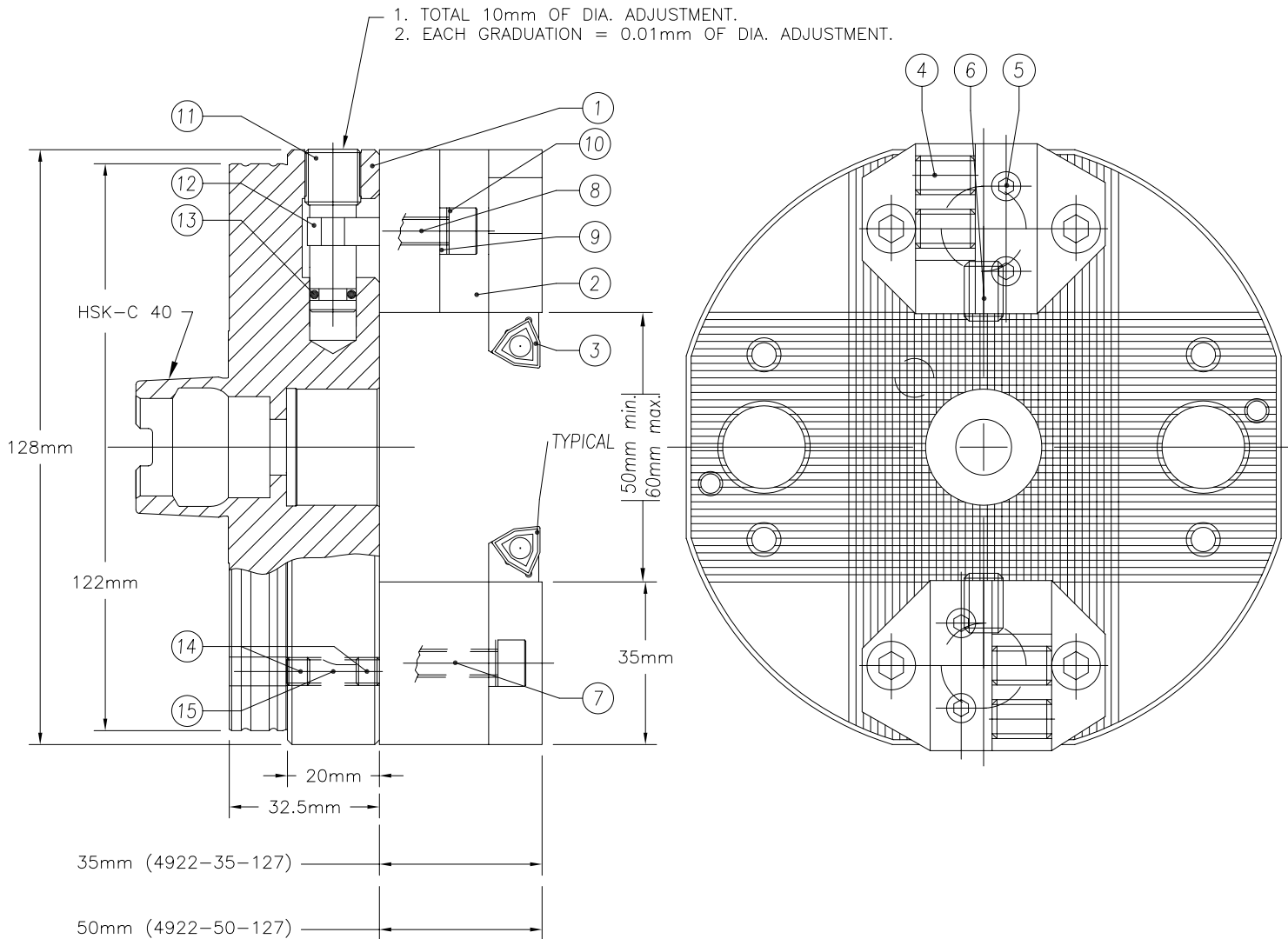
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM HB93925-127
2a	1	TOOLHOLDER (35mm Length)	4922-35-127
2b	1	TOOLHOLDER (50mm Length)	4922-55-127
3*	1	TOOL SHANK (1/2" MAXIMUM)	
4	1	SOCKET SET SCREW	M8 x 12mm
5	1	SOCKET SET SCREW	M6 x 6mm
6	1	SOCKET SET SCREW	M6 x 12mm
7	1	SOCKET HEAD CAP SCREW	M6 x 30mm
8	1	SOCKET HEAD CAP SCREW	M6 x 22mm
9	1	SPACER	4911-19
10	1	SPRING WASHER	212748 M6
11	1	ADJUSTING DIAL	4915-03
12	1	FORK	4915-10
13	1	O-RING	ORM 0060-20
14	1	SOCKET SET SCREW	M5 x 5mm
15	1	BRASS SHOE	4915-26
16	1	BRASS PIN	4915-28
17	1	SOCKET SET SCREW	M8 x 10mm
18*	1	BALANCE RINGS (FRW 950)	8020.12300

* NOT INCLUDED WITH TOOLHEAD

REV 12/4/2003

SECTION 6: TURNING HEADS

TH HSK C40-128.....HB93926-127



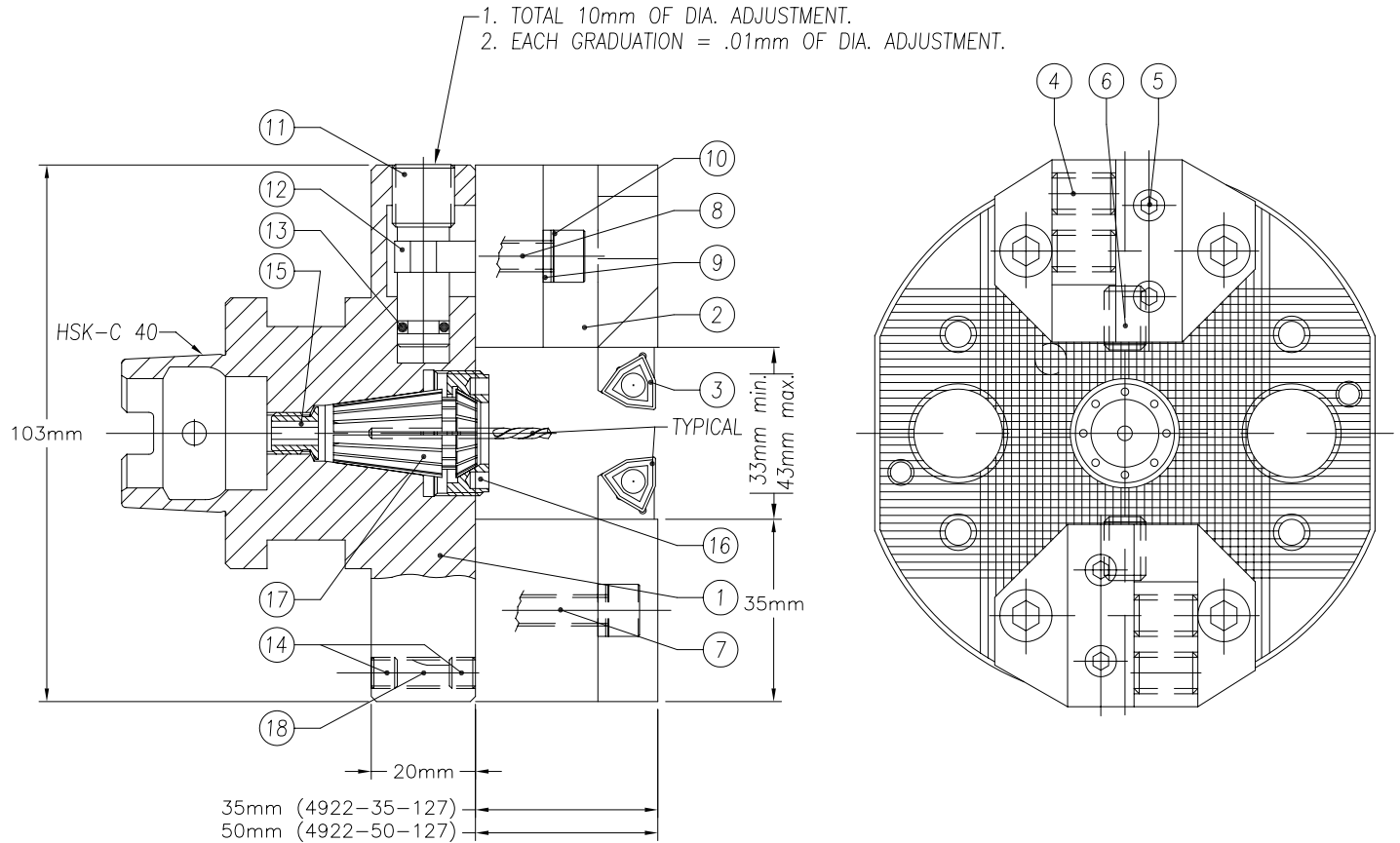
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM HB93926-127
2a	2	TOOLHOLDER (35mm Length)	4922-35-127
2b	2	TOOLHOLDER (50mm Length)	4922-55-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 30mm
8	2	SOCKET HEAD CAP SCREW	M6 x 22mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	2	BRASS SHOE	4915-26
16*	1	BALANCE RINGS (FWR 1220)	8020.12400

* NOT INCLUDED WITH TOOLHEAD

REV 12/4/2003

SECTION 6: TURNING HEADS

TH HSK C40-103/16.....H93945-127

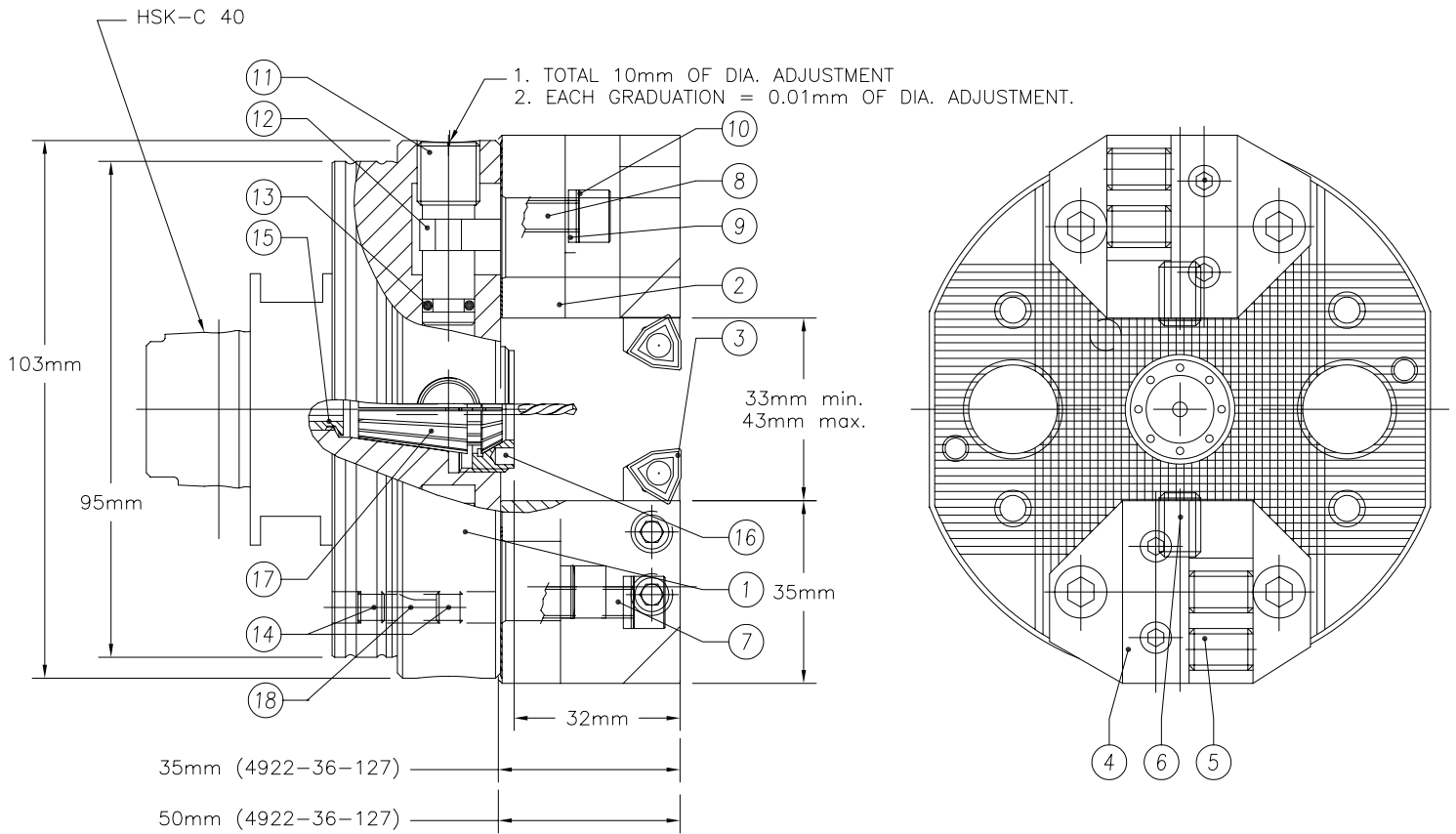


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM H93945-127
2a	2	TOOLHOLDER (35mm Length)	4922-35-127
2b	2	TOOLHOLDER (50mm Length)	4922-50-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 35mm
8	2	SOCKET HEAD CAP SCREW	M6 x 25mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	1	STOP SCREW	
16	1	PIN FACE NUT	916110
17*	1	COLLET (RANGE .5-10mm)	ER16
18	1	BRASS PIN	4915-28
19	1	WRENCH PIN FACE ER16A	916170

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH HSK C40-103/16.....HB93945-127



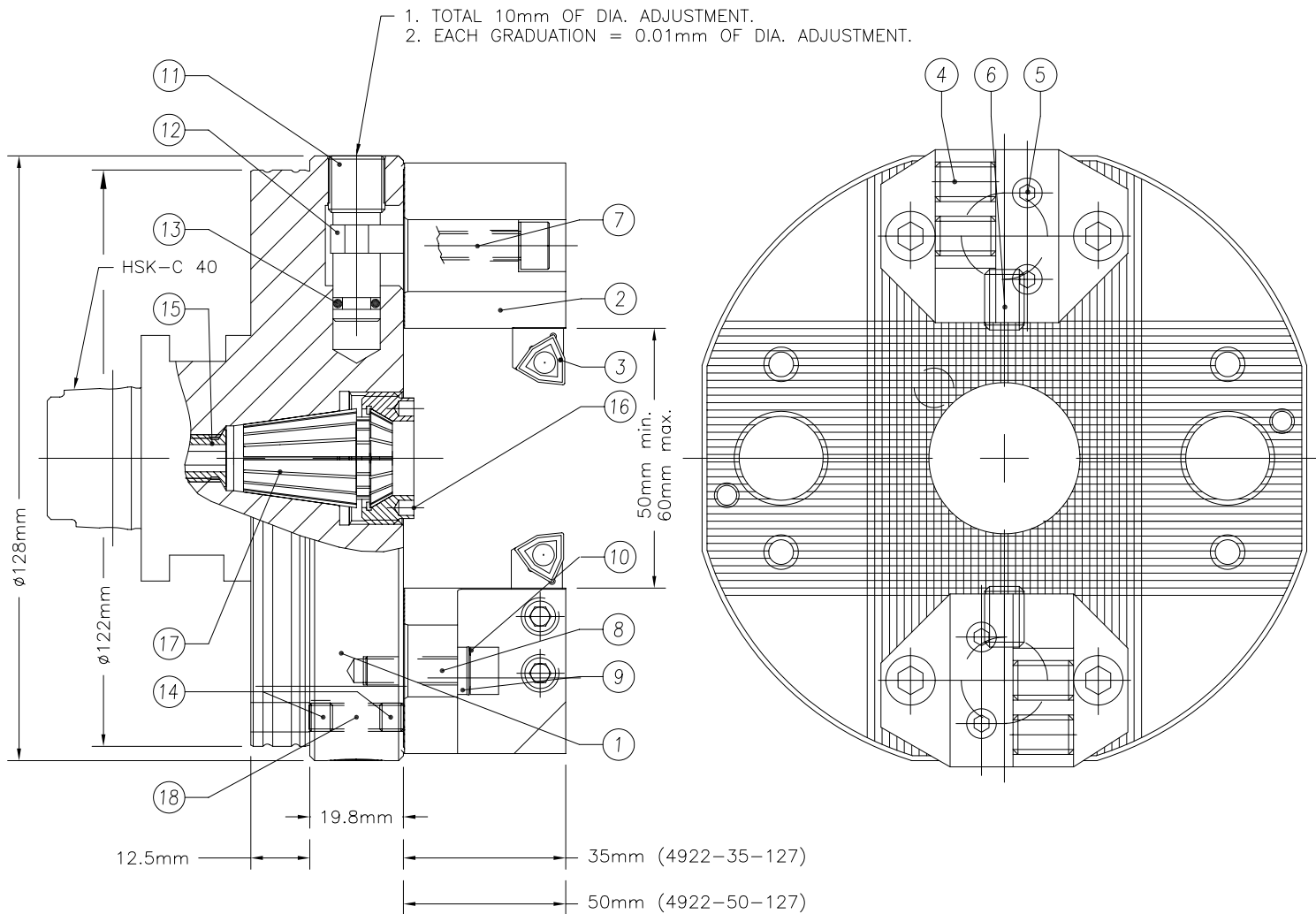
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM HB93926-127
2a	2	TOOLHOLDER (35mm Length)	4922-35-127
2b	2	TOOLHOLDER (50mm Length)	4922-55-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 30mm
8	2	SOCKET HEAD CAP SCREW	M6 x 22mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	1	STOP SCREW	
16	1	PIN FACE NUT	916110
17*	1	COLLET (RANGE 0.5-10mm)	ER16
18	1	BRASS PIN	4915-28
19	1	WRENCH PIN FACE ER16A	916170
20*	1	BALANCE RINGS (FWR 950)	8020.12300

* NOT INCLUDED WITH TOOLHEAD

REV 12/4/2003

SECTION 6: TURNING HEADS

TH HSK C40-128/20.....HB93946-127



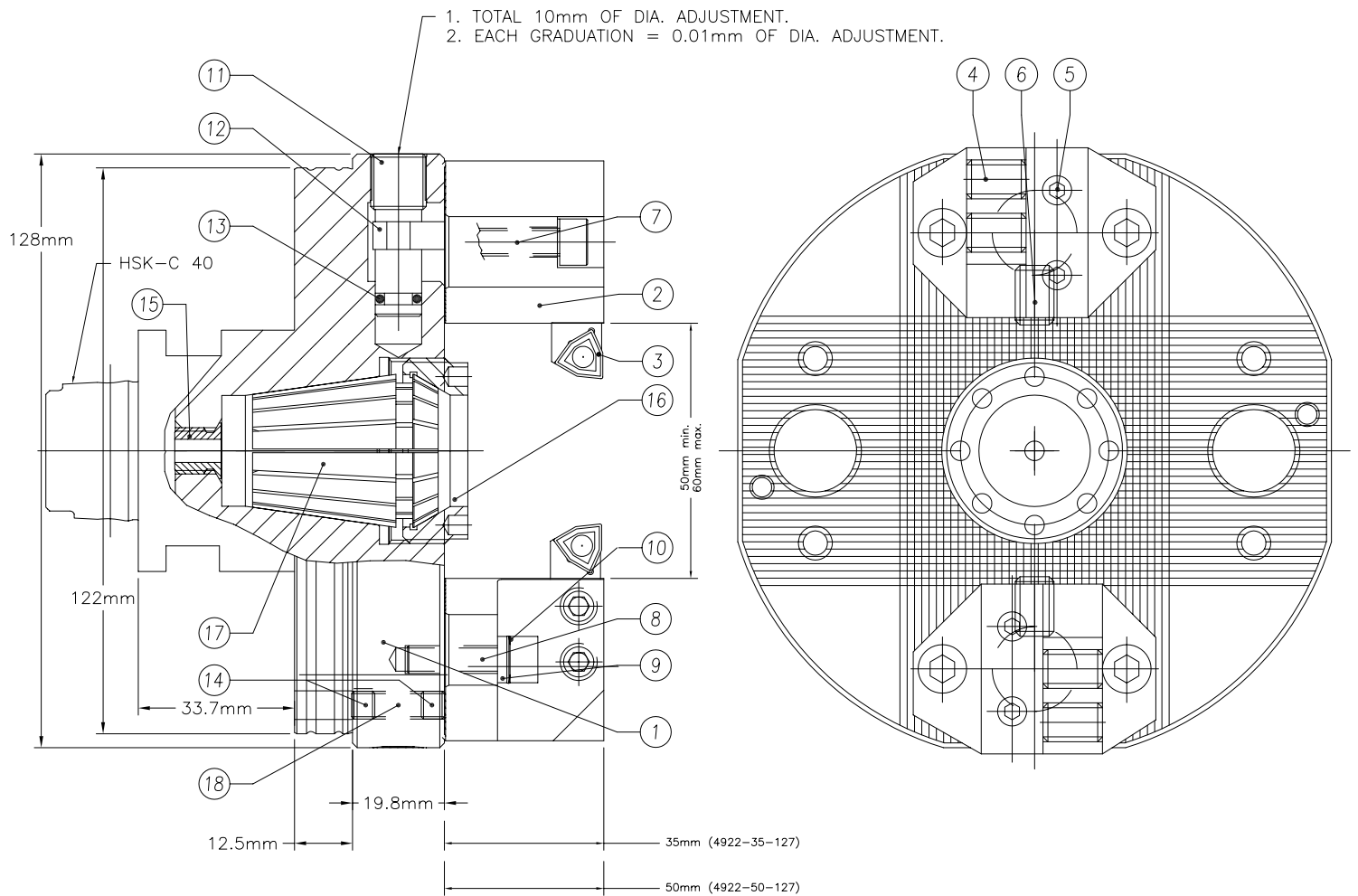
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM HB93946-127
2a	2	TOOLHOLDER (35mm Length)	4922-35-127
2b	2	TOOLHOLDER (50mm Length)	4922-55-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 35mm
8	2	SOCKET HEAD CAP SCREW	M6 x 25mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	1	STOP SCREW	
16	1	PIN FACE NUT	916110
17*	1	COLLET (RANGE 1-13mm)	ER20
18	1	BRASS PIN	4915-28
19	1	WRENCH PIN FACE ER20A	920170
20*	1	BALANCE RINGS (FWR 1220)	8020.12400

* NOT INCLUDED WITH TOOLHEAD

REV 12/4/2003

SECTION 6: TURNING HEADS

TH HSK C40-128/32.....HB93948-127



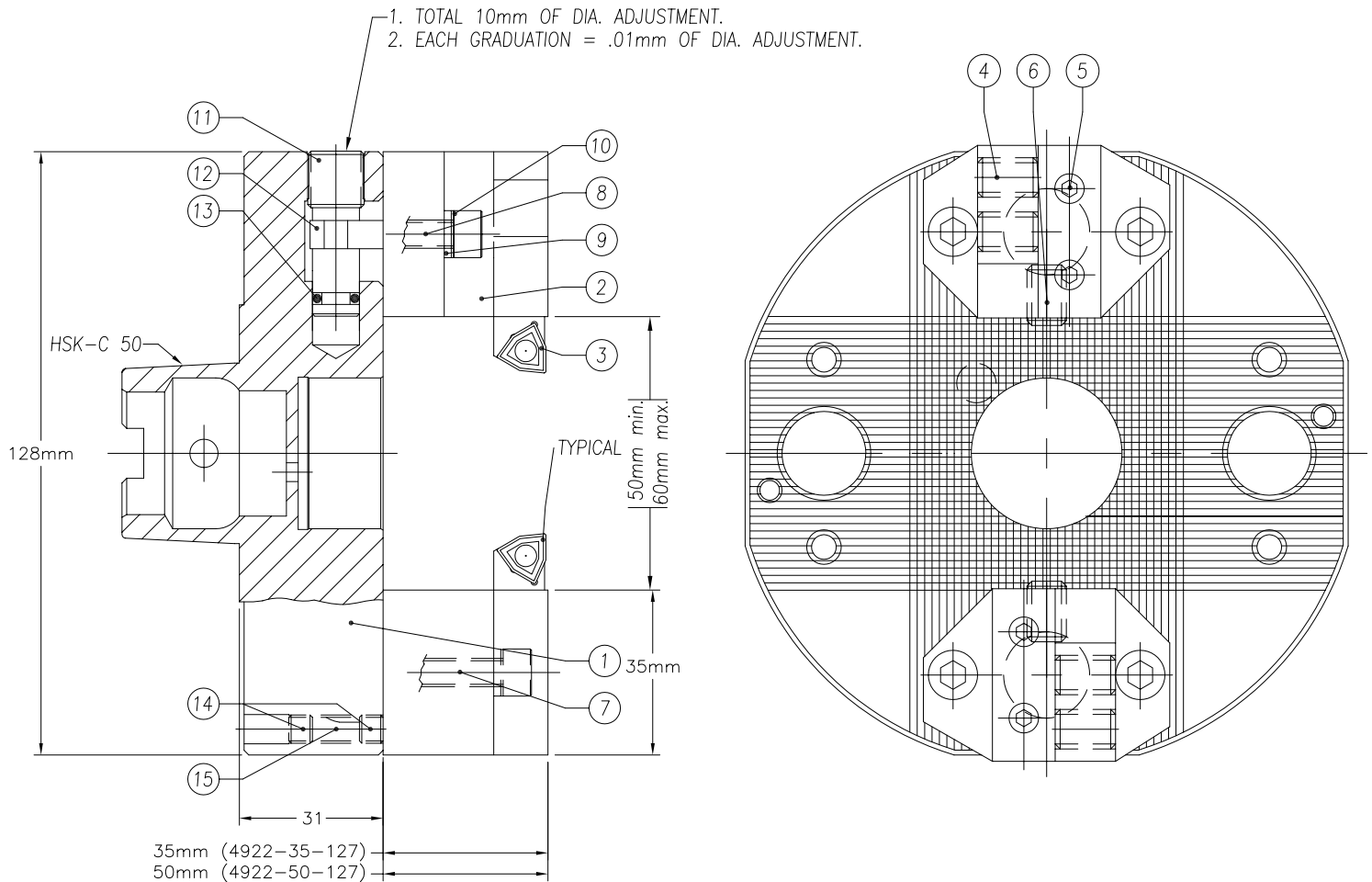
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM HB93946-127
2a	2	TOOLHOLDER (35mm Length)	4922-35-127
2b	2	TOOLHOLDER (50mm Length)	4922-55-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 35mm
8	2	SOCKET HEAD CAP SCREW	M6 x 25mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	1	STOP SCREW	
16	1	PIN FACE NUT	932110
17*	1	COLLET (RANGE 2-20mm)	ER32
18	1	BRASS PIN	4915-28
19	1	WRENCH PIN FACE ER32A	932170
20*	1	BALANCE RINGS (FWR 1220)	8020.12400

* NOT INCLUDED WITH TOOLHEAD

REV 1/23/2004

SECTION 6: TURNING HEADS

TH HSK C50-128.....H94926-127

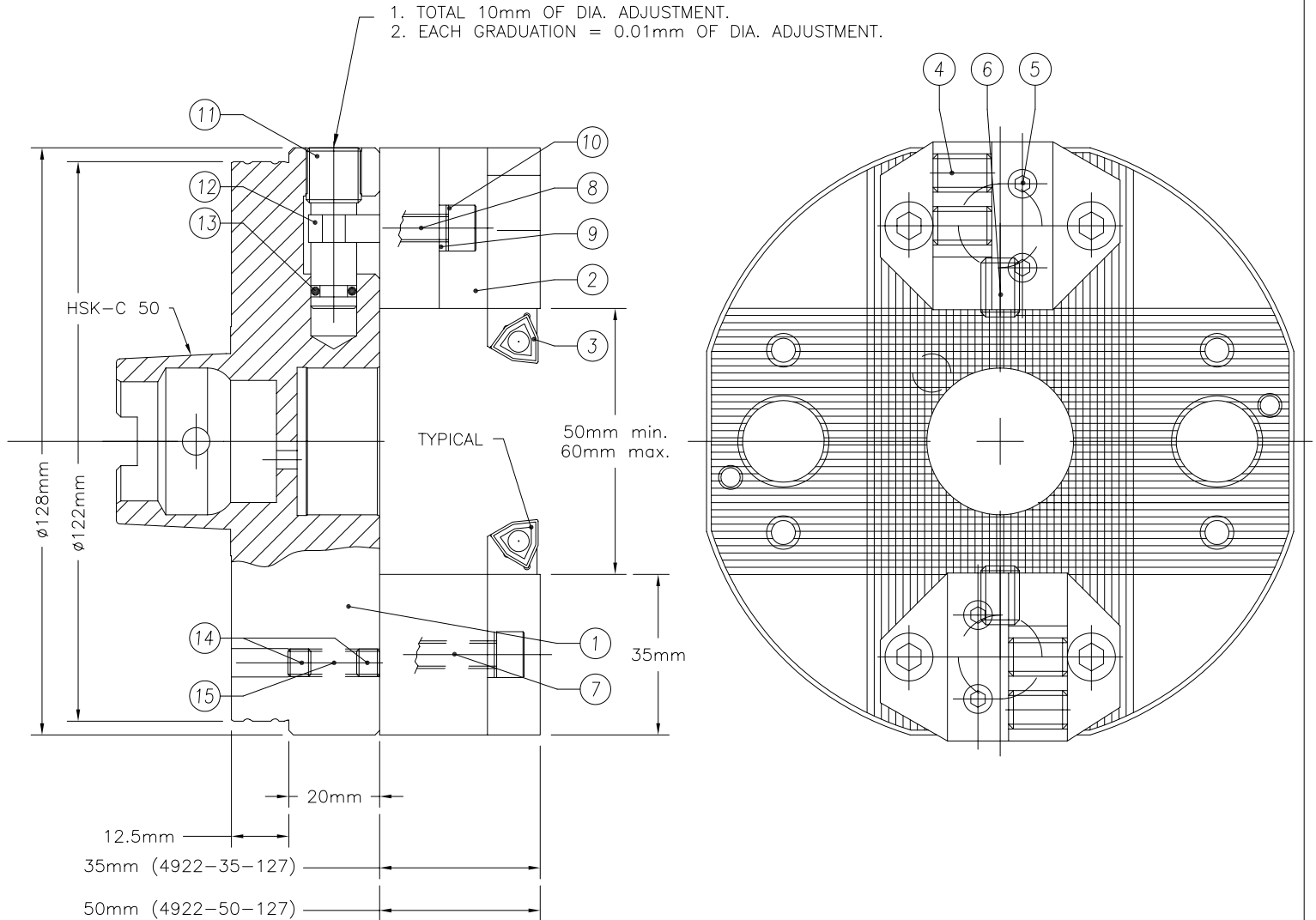


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM H93925-127
2a	2	TOOLHOLDER (35mm Length)	4922-35-127
2b	2	TOOLHOLDER (50mm Length)	4922-50-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 30mm
8	2	SOCKET HEAD CAP SCREW	M6 x 22mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	2	BRASS SHOE	4915-28

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH HSK C50-128.....HB94926-127



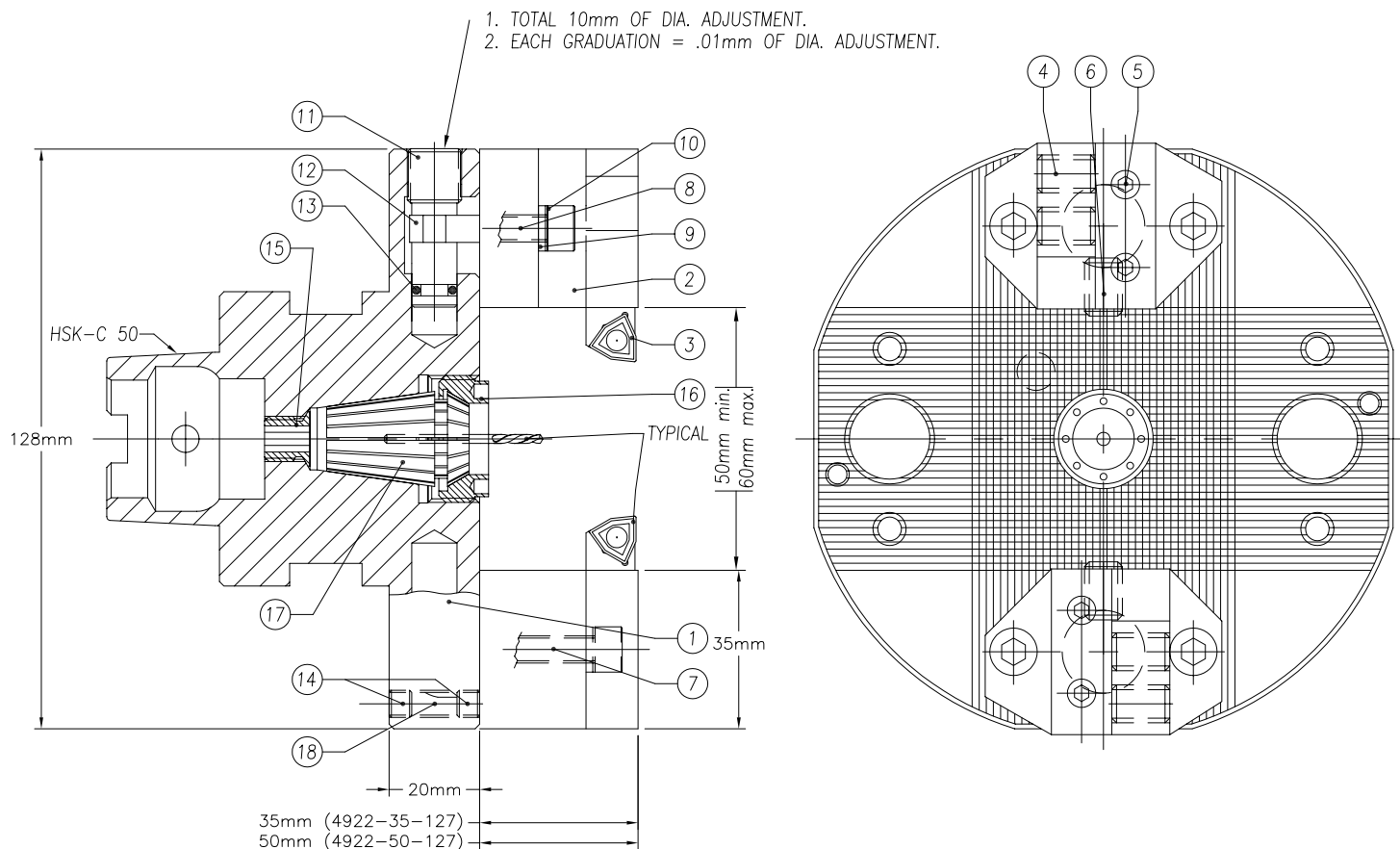
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM HB93925-127
2a	1	TOOLHOLDER (35mm Length)	4922-35-127
2b	1	TOOLHOLDER (50mm Length)	4922-55-127
3*	1	TOOL SHANK (1/2" MAXIMUM)	
4	1	SOCKET SET SCREW	M8 x 12mm
5	1	SOCKET SET SCREW	M6 x 6mm
6	1	SOCKET SET SCREW	M6 x 12mm
7	1	SOCKET HEAD CAP SCREW	M6 x 30mm
8	1	SOCKET HEAD CAP SCREW	M6 x 22mm
9	1	SPACER	4911-19
10	1	SPRING WASHER	212748 M6
11	1	ADJUSTING DIAL	4915-03
12	1	FORK	4915-10
13	1	O-RING	ORM 0060-20
14	1	SOCKET SET SCREW	M5 x 5mm
15	1	BRASS SHOE	4915-26
16*	1	BALANCE RINGS (FRW 1220)	8020.12400

* NOT INCLUDED WITH TOOLHEAD

REV 12/4/2003

SECTION 6: TURNING HEADS

TH HSK C50-128/20.....H94946-127

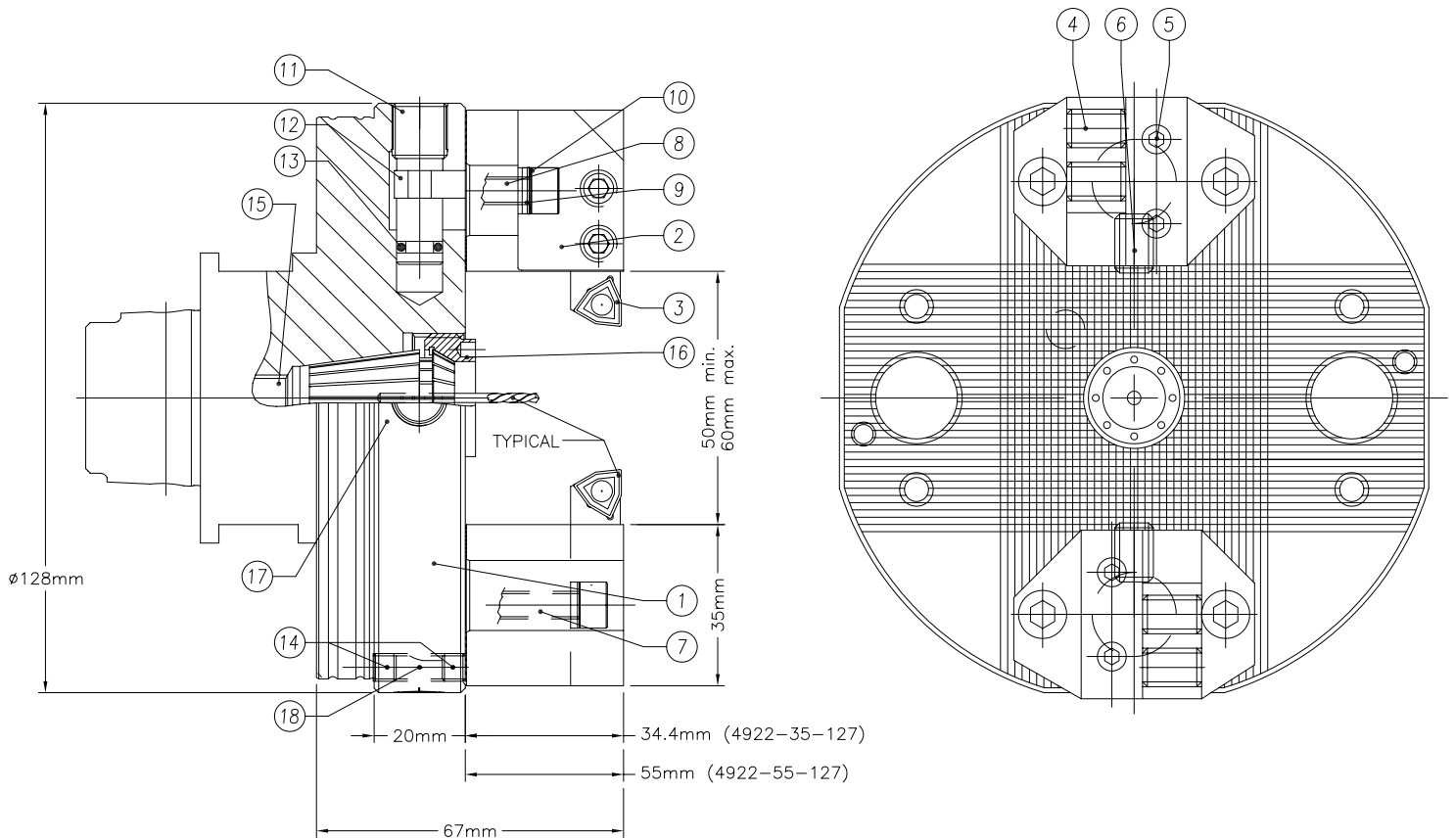


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM H94946-127
2a	2	TOOLHOLDER (35mm Length)	4922-35-127
2b	2	TOOLHOLDER (50mm Length)	4922-50-127
3*	2	TOOL SHANK (1/2" MAXIMUM)	
4	4	SOCKET SET SCREW	M8 x 12mm
5	4	SOCKET SET SCREW	M6 x 6mm
6	2	SOCKET SET SCREW	M6 x 12mm
7	2	SOCKET HEAD CAP SCREW	M6 x 35mm
8	2	SOCKET HEAD CAP SCREW	M6 x 25mm
9	4	SPACER	4911-19
10	4	SPRING WASHER	212748 M6
11	2	ADJUSTING DIAL	4915-03
12	2	FORK	4915-10
13	2	O-RING	ORM 0060-20
14	4	SOCKET SET SCREW	M5 x 5mm
15	1	STOP SCREW	
16	1	PIN FACE NUT	920110
17*	1	COLLET (RANGE 1-13mm)	ER20
18	1	BRASS PIN	4915-28
19	1	WRENCH PIN FACE ER20A	920170

* NOT INCLUDED WITH TOOLHEAD

SECTION 6: TURNING HEADS

TH HSK C50-128/20.....HB94946-127



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	TURNING HEAD	PCM HB94946-127
2a	1	TOOLHOLDER (35mm Length)	4922-35-127
2b	1	TOOLHOLDER (50mm Length)	4922-55-127
3*	1	TOOL SHANK (1/2" MAXIMUM)	
4	1	SOCKET SET SCREW	M8 x 12mm
5	1	SOCKET SET SCREW	M6 x 6mm
6	1	SOCKET SET SCREW	M6 x 12mm
7	1	SOCKET HEAD CAP SCREW	M6 x 35mm
8	1	SOCKET HEAD CAP SCREW	M6 x 25mm
9	1	SPACER	4911-19
10	1	SPRING WASHER	212748 M6
11	1	ADJUSTING DIAL	4915-03
12	1	FORK	4915-10
13	1	O-RING	ORM 0060-20
14	1	SOCKET SET SCREW	M5 x 5mm
15	1	STOP SCREW	
16	1	PIN FACE NUT	920110
17*	1	COLLET (RANGE 1 - 13mm)	ER20
18	1	BRASS PIN	4915-28
19	1	WRENCH PIN FACE ER20A	920170
20	1	BALANCE RINGS (FRW 1220)	8020.12400

* NOT INCLUDED WITH TOOLHEAD

REV 12/4/2003

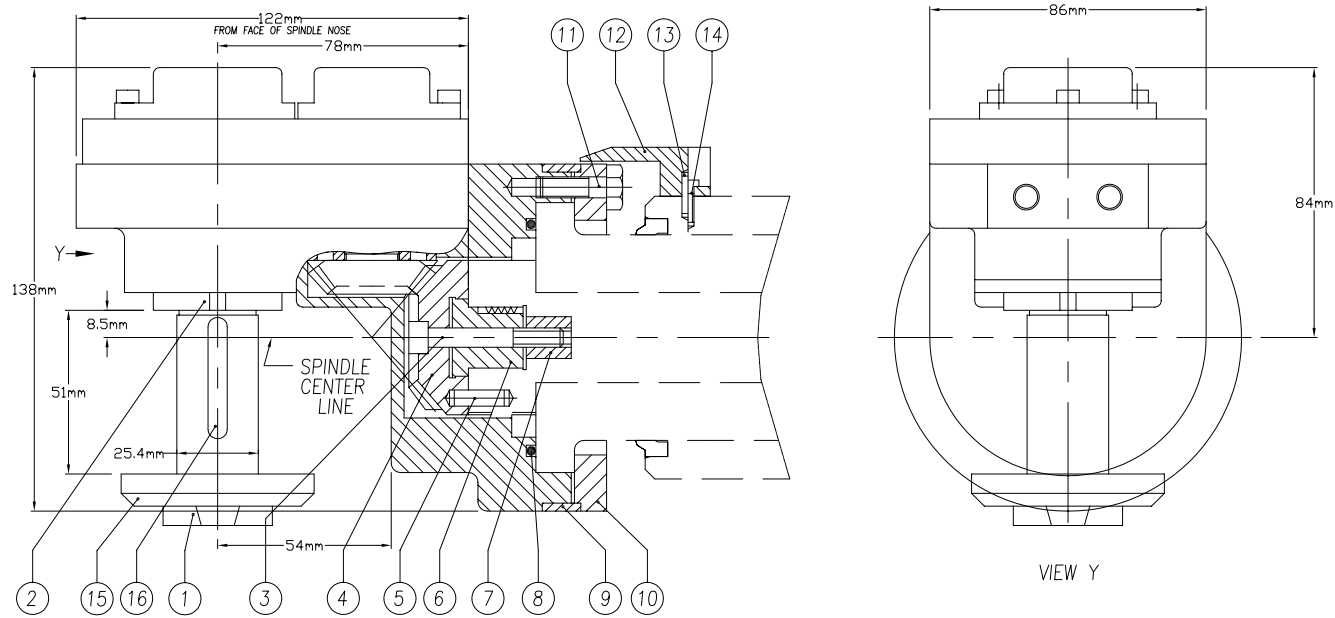
SECTION 7

MILLING HEADS

SECTION 7: MILLING HEADS

FK 26-2/4 FQ.....5.19.035-2

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		4"
MAXIMUM RPM		1640
SHANK SIZE		1" x 2"
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1.95	1

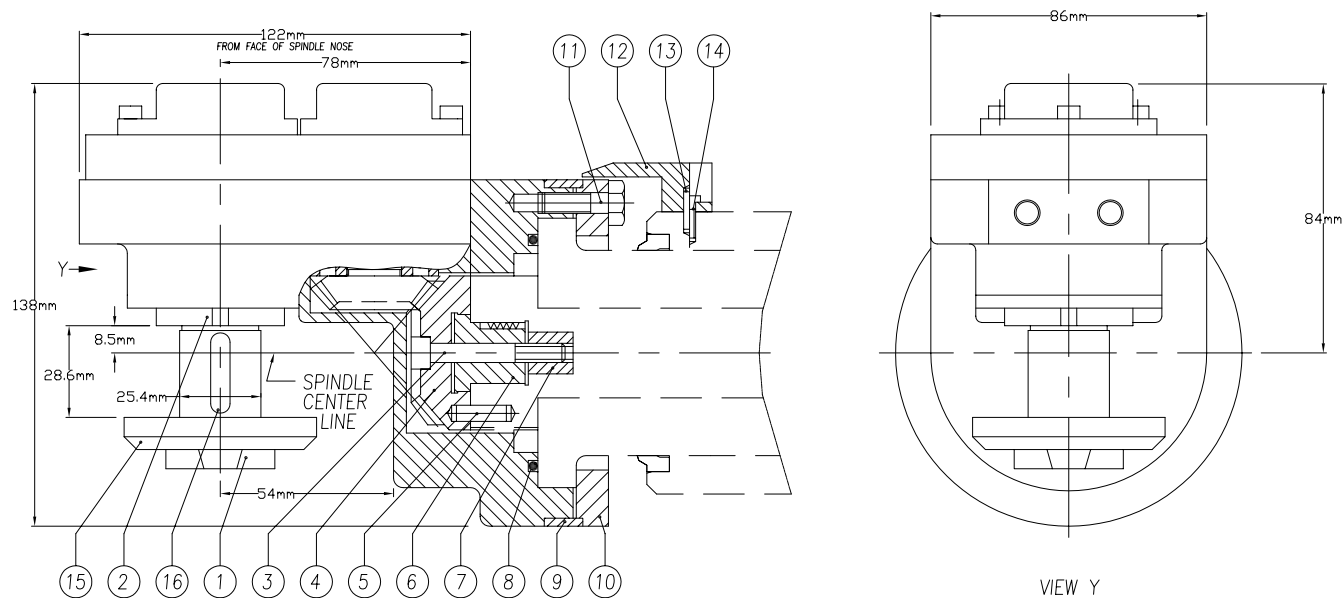


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M12/27
2	1	SHANK (SIZE 1.0" x 2")	5.19.009-12
3	1	SOCKET HEAD CAP SCREW	M8 x 40mm
4	1	BEVEL GEAR	5.19.181
5	1	DOWEL PIN	6 x 16mm
6	1	SPINDLE NOSE ADAPTOR	5.19.321
7	1	THREADED BUSHING	5.19.313
8	1	O-RING	ORM 0690-30
9	1	CALIBRATION RING	5.19.351
10	1	FLANGE CLAMP	5.20.314
11	8	BOLTS	M6 x 20mm
12	1	INDICATOR	5.19.350
13	1	DOWEL PIN	4 x 10mm
14	2	SOCKET HEAD CAP SCREW	M5 x 12mm
15	1	CAP	5.19.135
16	1	KEY (IF APPLICABLE)	1/4"x1/4"x1.5"
17	1	WRENCH HOOK SPANNER	61350 #27
18	1	WRENCH HOOK SPANNER	73900 40-42mm

SECTION 7: MILLING HEADS

FK 26-2/4 FQ.....5.19.035-4

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		4"
MAXIMUM RPM		1640
SHANK SIZE		1"x1 1/8"
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1.95	1

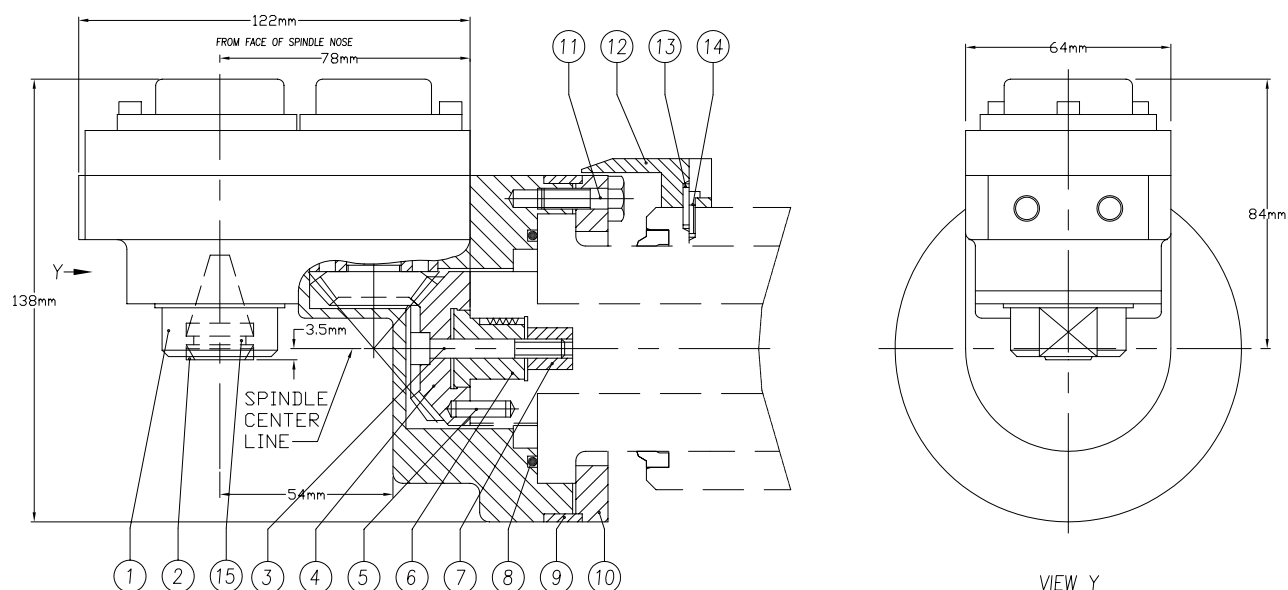


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M12/27
2	1	SHANK (SIZE 1.0" x 1.125")	5.19.009-14
3	1	SOCKET HEAD CAP SCREW	M8 x 40mm
4	1	BEVEL GEAR	5.19.181
5	1	DOWEL PIN	6 x 16mm
6	1	SPINDLE NOSE ADAPTOR	5.19.321
7	1	THREADED BUSHING	5.19.313
8	1	O-RING	ORM 0690-30
9	1	CALIBRATION RING	5.19.351
10	1	FLANGE CLAMP	5.20.314
11	8	BOLTS	M6 x 20mm
12	1	INDICATOR	5.19.350
13	1	DOWEL PIN	4 x 10mm
14	2	SOCKET HEAD CAP SCREW	M5 x 12mm
15	1	CAP	5.19.135
16	1	KEY (IF APPLICABLE)	1/4"x1/4"x1.0"
17	1	WRENCH HOOK SPANNER	61350 #27
18	1	WRENCH HOOK SPANNER	73900 40-42mm

SECTION 7: MILLING HEADS

FK 26-1/20 FQ.....5.19.036-1

TOOLHEAD SPECIFICATIONS		
MAX. CUTTER SHANK SIZE		1/2" DIA.
MAXIMUM RPM		1640
COLLET TYPE		ER20
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1	1.13



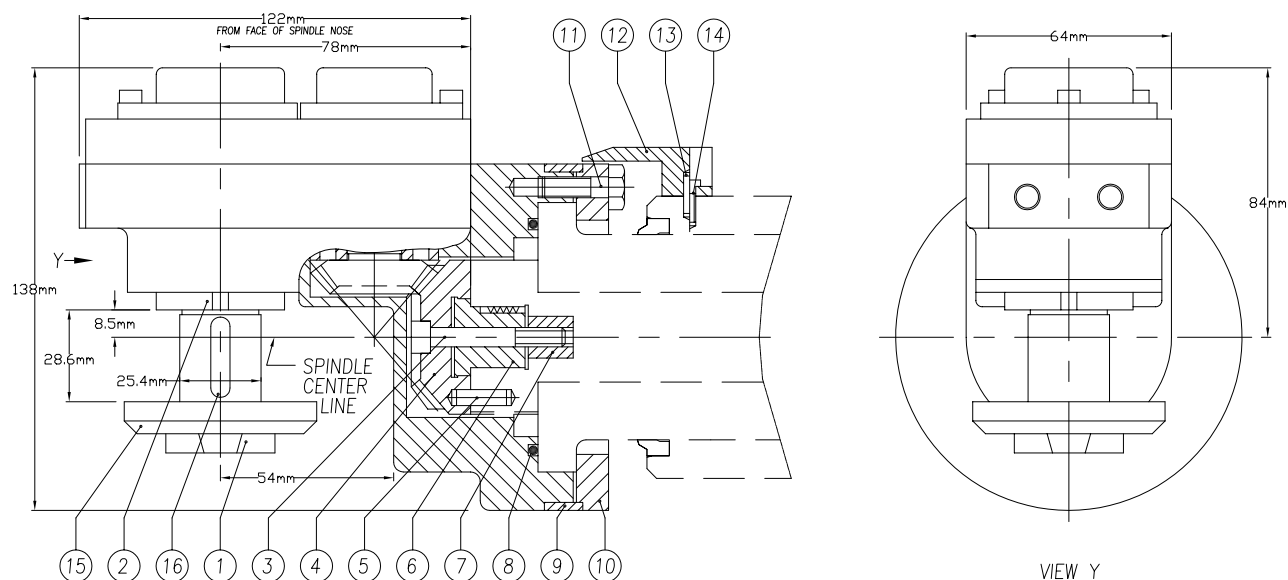
ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	SPINDLE	5.19.009-7
2	1	PIN FACE NUT ER20A	920110
3	1	SOCKET HEAD CAP SCREW	M8 x 40mm
4	1	BEVEL GEAR	5.19.181
5	1	DOWEL PIN	6 x 16mm
6	1	SPINDLE NOSE ADAPTOR	5.19.321
7	1	THREADED BUSHING	5.19.313
8	1	O-RING	ORM 0690-30
9	1	CALIBRATION RING	5.19.351
10	1	FLANGE CLAMP	5.20.314
11	8	BOLTS	M6 x 20mm
12	1	INDICATOR	5.19.350
13	1	DOWEL PIN	4 x 10mm
14	2	SOCKET HEAD CAP SCREW	M5 x 12mm
15*	1	COLLET (RANGE 1-13mm)	ER20
16	1	WRENCH PIN FACE ER20A	920170
17	1	WRENCH OPEN END	72102 32mm

* NOT INCLUDED WITH TOOLHEAD

SECTION 7: MILLING HEADS

FK 26-1/4 FQ.....5.19.036-2

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		4"
MAXIMUM RPM		1640
SHANK SIZE		1"x1 1/8"
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1	1.13

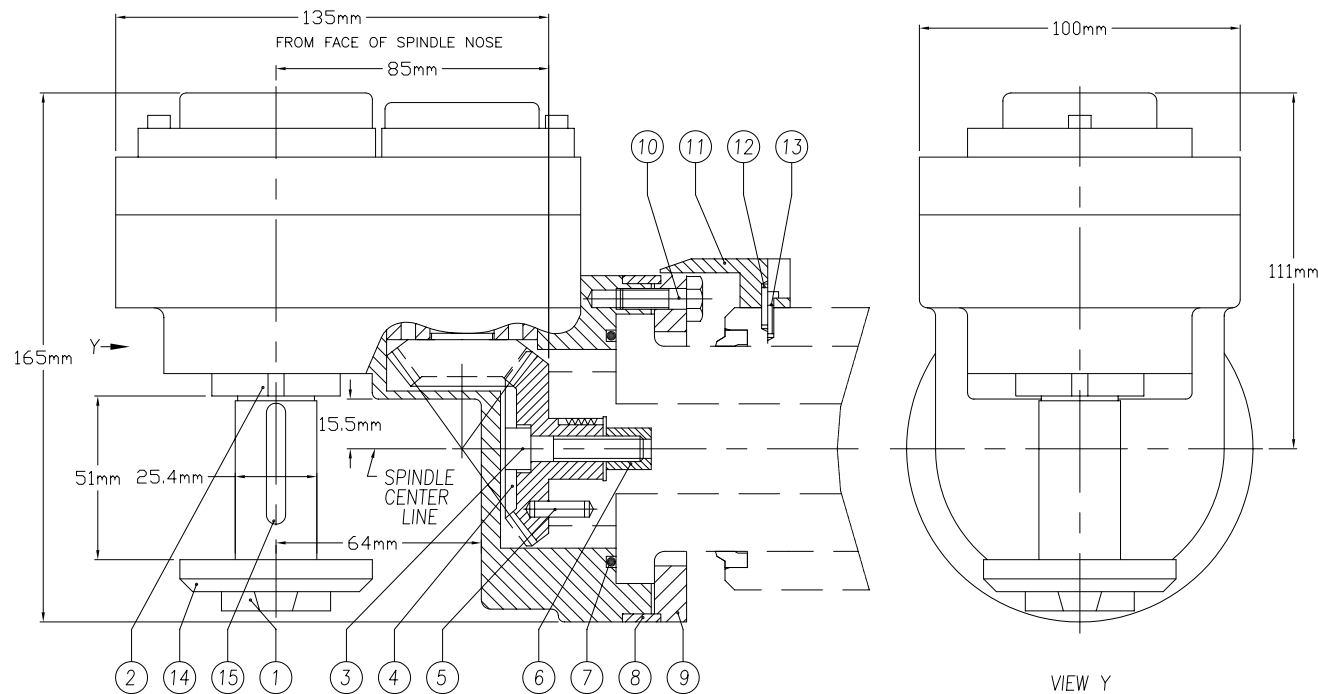


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M12/27
2	1	SHANK (SIZE 1.0" x 1.125")	5.19.009-14
3	1	SOCKET HEAD CAP SCREW	M8 x 40mm
4	1	BEVEL GEAR	5.19.181
5	1	DOWEL PIN	6 x 16mm
6	1	SPINDLE NOSE ADAPTOR	5.19.321
7	1	THREADED BUSHING	5.19.313
8	1	O-RING	ORM 0690-30
9	1	CALIBRATION RING	5.19.351
10	1	FLANGE CLAMP	5.20.314
11	8	BOLTS	M6 x 20mm
12	1	INDICATOR	5.19.350
13	1	DOWEL PIN	4 x 10mm
14	2	SOCKET HEAD CAP SCREW	M5 x 12mm
15	1	CAP	5.19.135
16	1	KEY (IF APPLICABLE)	1/4"x1/4"x1"
17	1	WRENCH HOOK SPANNER	61350 #27
18	1	WRENCH HOOK SPANNER	73900 40-42mm

SECTION 7: MILLING HEADS

FK 26-1.4/5 FQ.....5.19.038-2

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		5"
MAXIMUM RPM		1640
SHANK SIZE		1" x 2"
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1	1.46

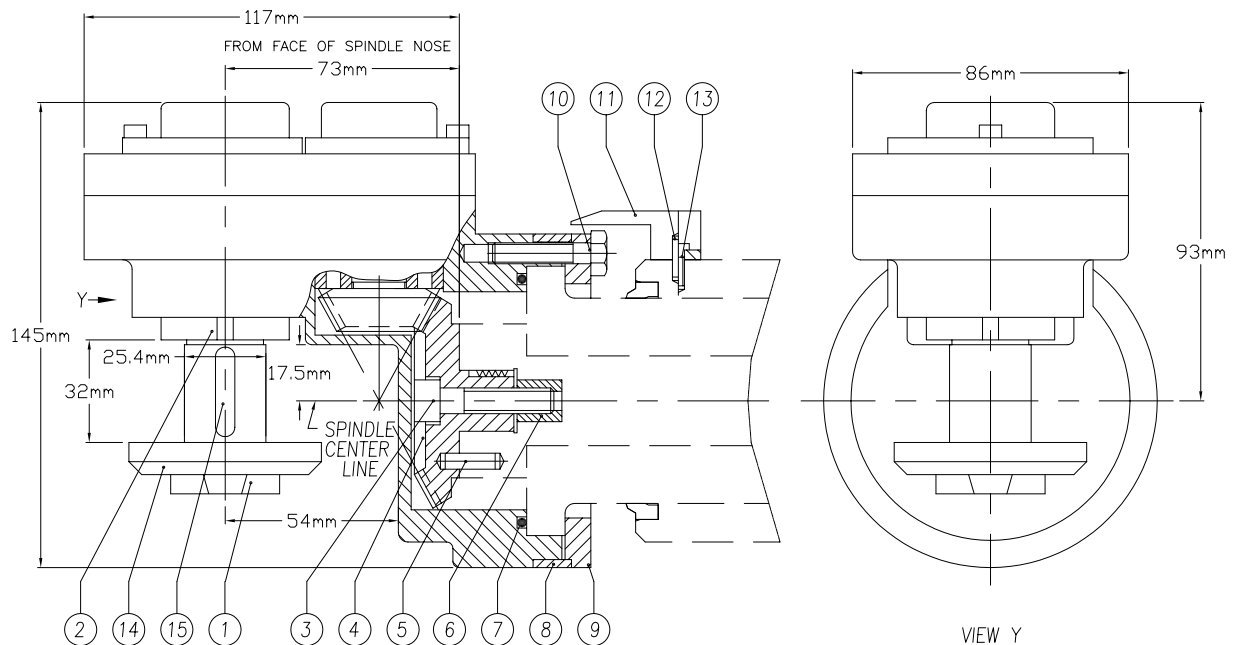


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M12/27
2	1	SHANK (SIZE 1.0" x 2.0")	5.19.027-2
3	1	SOCKET HEAD CAP SCREW	M8 x 35mm
4	1	BEVEL GEAR	5.19.311
5	1	DOWEL PIN	6 x 16mm
6	1	THREADED BUSHING	5.19.313
7	1	O-RING	ORM 0690-30
8	1	CALIBRATION RING	5.19.351
9	1	FLANGE CLAMP	5.20.314
10	8	BOLTS	M6 x 20mm
11	1	INDICATOR	5.19.350
12	1	DOWEL PIN	4 x 10mm
13	2	SOCKET HEAD CAP SCREW	M5 x 12mm
14	1	CAP	5.19.135
15	1	KEY (IF APPLICABLE)	1/4"x1/4"x1.5"
16	1	WRENCH HOOK SPANNER	61350 #27
17	1	WRENCH HOOK SPANNER	73900 40-42mm

SECTION 7: MILLING HEADS

FK 26-1.2/4 FQ.....5.19.078-2

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		4"
MAXIMUM RPM		1640
SHANK SIZE		1"x1 1/4"
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1.21	1

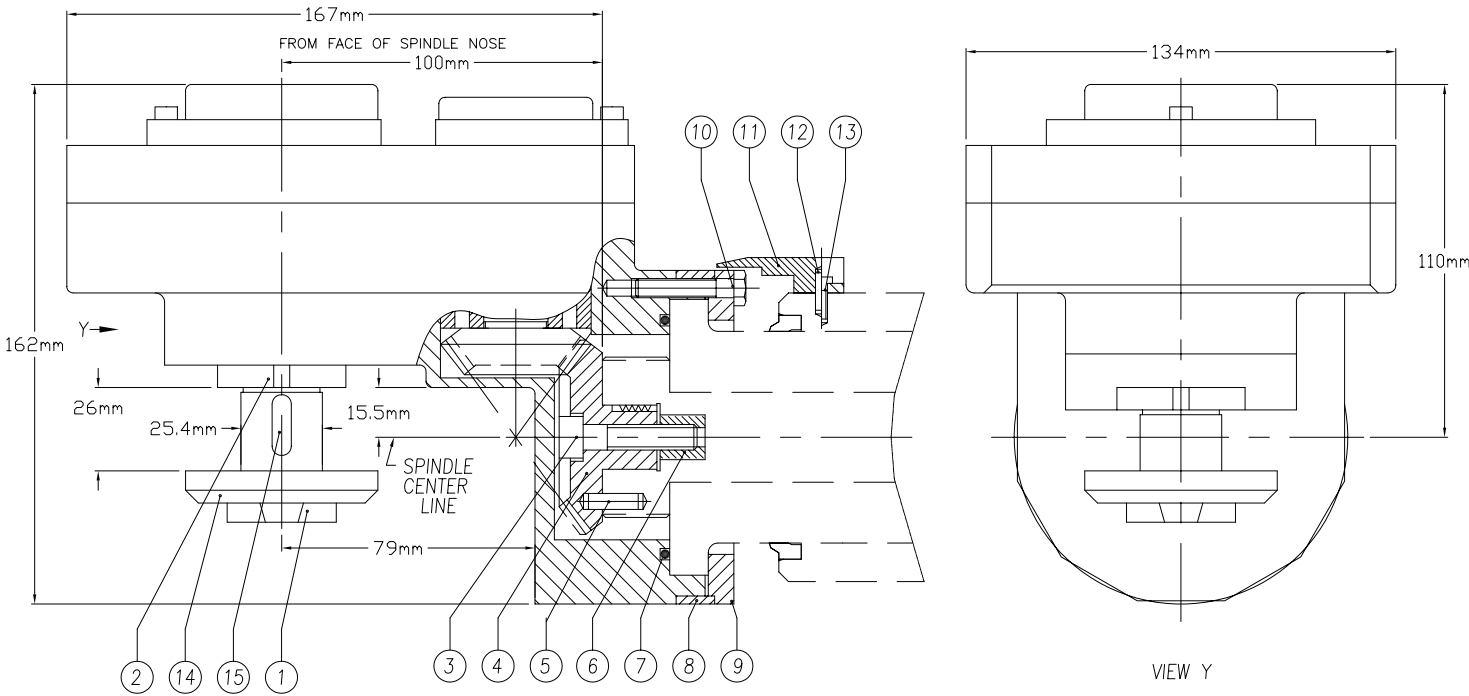


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M12/27
2	1	SHANK (SIZE 1.0" x 1.25")	5.19.045-2
3	1	SOCKET HEAD CAP SCREW	M8 x 35mm
4	1	BEVEL GEAR	5.19.404
5	1	DOWEL PIN	6 x 16mm
6	1	THREADED BUSHING	5.19.313
7	1	O-RING	OR-3281
8	1	CALIBRATION RING	5.19.405
9	1	FLANGE CLAMP	5.20.406
10	8	BOLTS	M6 x 30mm
11	1	INDICATOR	5.19.407
12	1	DOWEL PIN	4 x 10mm
13	2	SOCKET HEAD CAP SCREW	M5 x 12mm
14	1	CAP	5.19.135
15	1	KEY (IF APPLICABLE)	1/4"x1/4"x1.0"
16	1	WRENCH HOOK SPANNER	61350 #27
17	1	WRENCH HOOK SPANNER	73900 40-42mm

SECTION 7: MILLING HEADS

FK 26-2/6 FQ.....5.19.047-2

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		6"
MAXIMUM RPM		1640
SHANK SIZE		1"x26mm
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	2	1

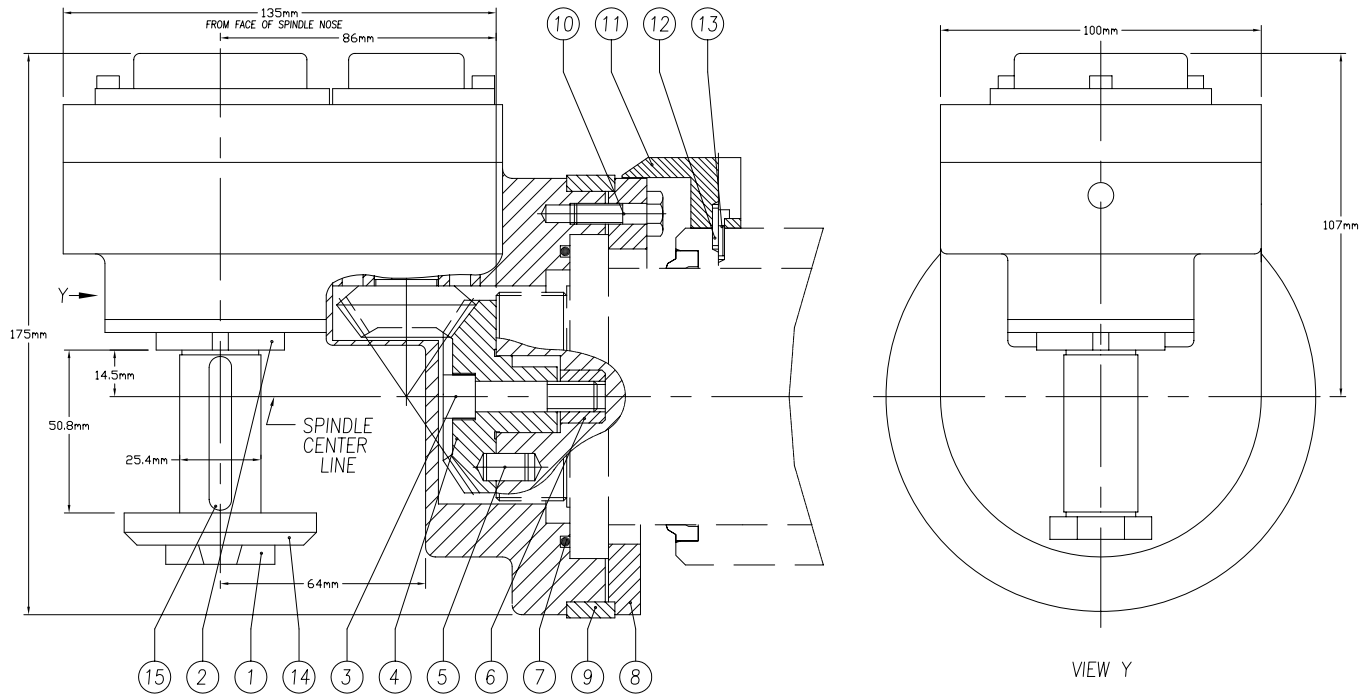


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M12/27
2	1	SHANK (SIZE 1.0" x 26mm)	5.19.027-8
3	1	SOCKET HEAD CAP SCREW	M8 x 35mm
4	1	BEVEL GEAR	5.19.311
5	1	DOWEL PIN	6 x 16mm
6	1	THREADED BUSHING	5.19.313
7	1	O-RING	ORM 0690-30
8	1	CALIBRATION RING	5.19.405
9	1	FLANGE CLAMP	5.20.406
10	8	BOLTS	M6 x 30mm
11	1	INDICATOR	5.19.407
12	1	DOWEL PIN	4 x 10mm
13	2	SOCKET HEAD CAP SCREW	M5 x 12mm
14	1	CAP	5.19.135
15	1	KEY (IF APPLICABLE)	1/4"x1/4"x3/4"
16	1	WRENCH HOOK SPANNER	61350 #27
17	1	WRENCH HOOK SPANNER	73900 40-42mm

SECTION 7: MILLING HEADS

FK 36-1.5/5 FQ-T.....6.19.004-2

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		5"
MAXIMUM RPM		1000
SHANK SIZE		1" x 2"
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1.46	1

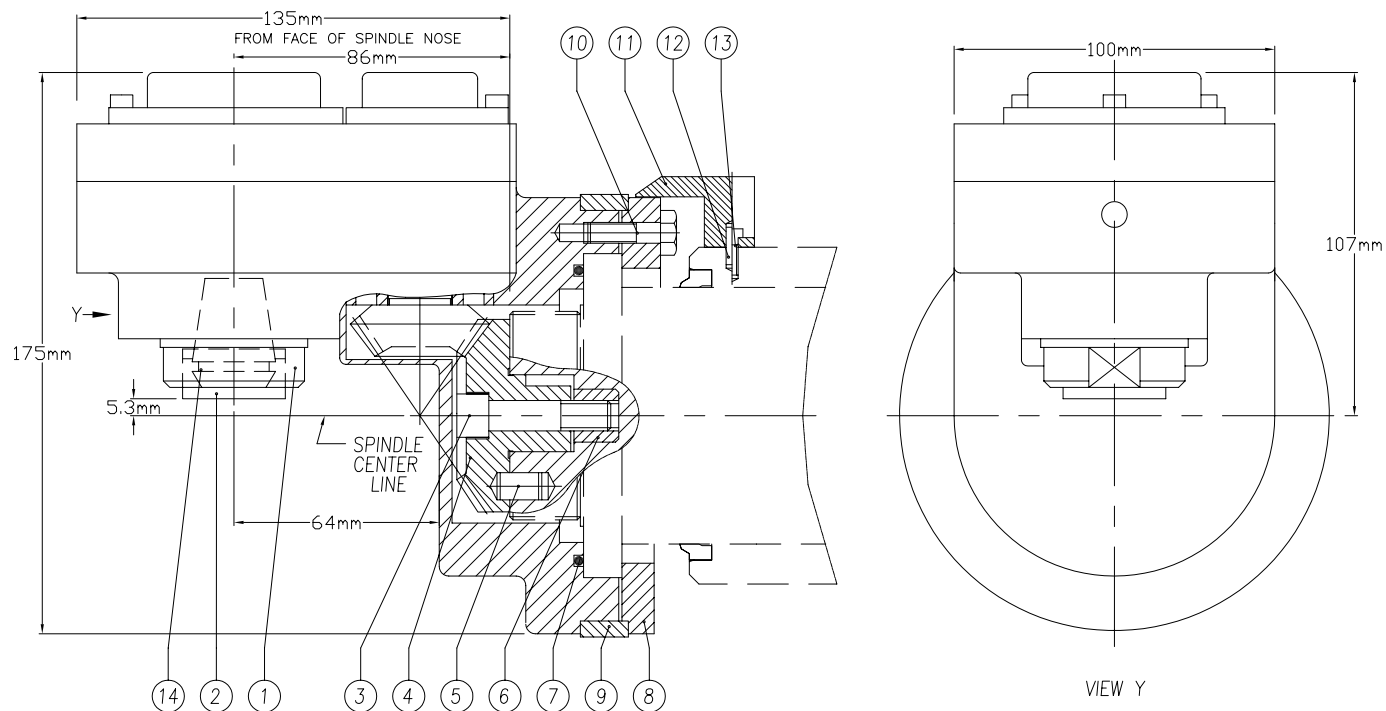


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M12/27
2	1	SHANK (SIZE 1.0" x 2.0")	5.19.027-2
3	1	SOCKET HEAD CAP SCREW	M10 x 40mm
4	1	BEVEL GEAR	6.19.142
5	1	DOWEL PIN	8 x 14mm
6	1	THREADED BUSHING	6.19.143
7	1	O-RING	ORM 0880-30
8	1	FLANGE CLAMP	6.19.144
9	1	CALIBRATION RING	6.19.145
10	8	BOLT	M8 x 25mm
11	1	INDICATOR	6.19.146
12	1	DOWEL PIN	4 x 10mm
13	2	SOCKET HEAD CAP SCREW	M5 x 14mm
14	1	SPACER	5.19.135
15	1	KEY (IF APPLICABLE)	1/4"x1/4"x1.5"
16	1	WRENCH HOOK SPANNER	61350 #27
17	1	WRENCH HOOK SPANNER	73900 45-50mm

SECTION 7: MILLING HEADS

FK 36-1.5/25 FQ-T.....6.19.004-4

TOOLHEAD SPECIFICATIONS		
MAX. CUTTER SHANK DIAMETER		5/8"
MAXIMUM RPM		1000
COLLET TYPE		ER25
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1.46	1



ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	SPINDLE	6.19.184
2	1	PIN FACE NUT ER25A	925110
3	1	SOCKET HEAD CAP SCREW	M10 x 40mm
4	1	BEVEL GEAR	6.19.142
5	1	DOWEL PIN	8 x 14mm
6	1	THREADED BUSHING	6.19.143
7	1	O-RING	ORM 0880-30
8	1	FLANGE CLAMP	6.19.144
9	1	CALIBRATION RING	6.19.145
10	8	BOLT	M8 x 25mm
11	1	INDICATOR	6.19.146
12	1	DOWEL PIN	4 x 10mm
13	2	SOCKET HEAD CAP SCREW	M5 x 14mm
14*	1	COLLET (RANGE 1-16mm)	ER25
15	1	WRENCH PIN FACE ER25A	925170
16	1	WRENCH OPEN END	72102 42mm

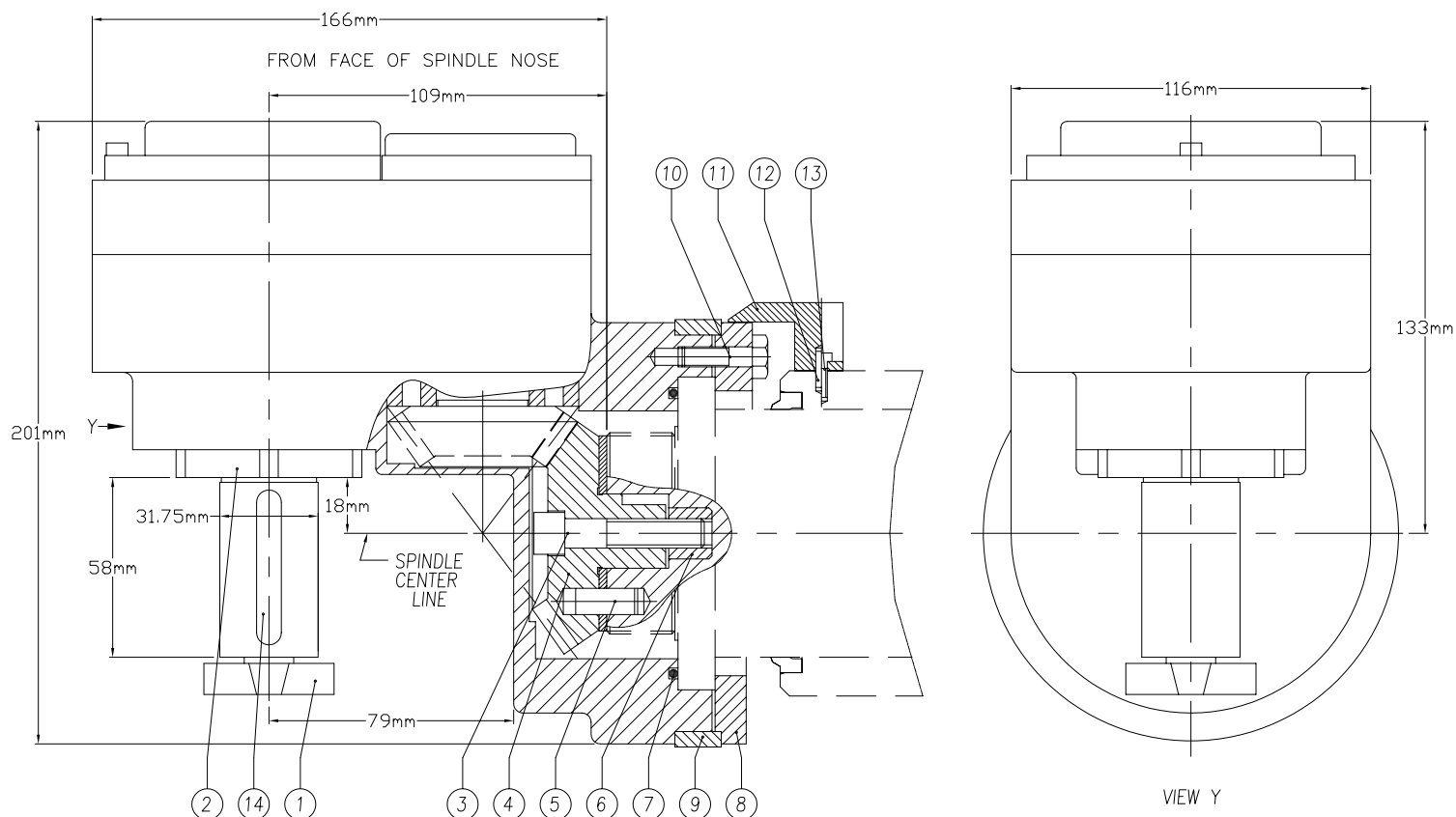
* NOT INCLUDED WITH TOOLHEAD

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SECTION 7: MILLING HEADS

FK 36-1.3/6 FQ.....6.19.010-2

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		6"
MAXIMUM RPM		1000
SHANK SIZE		1.25"x55mm
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1.25	1

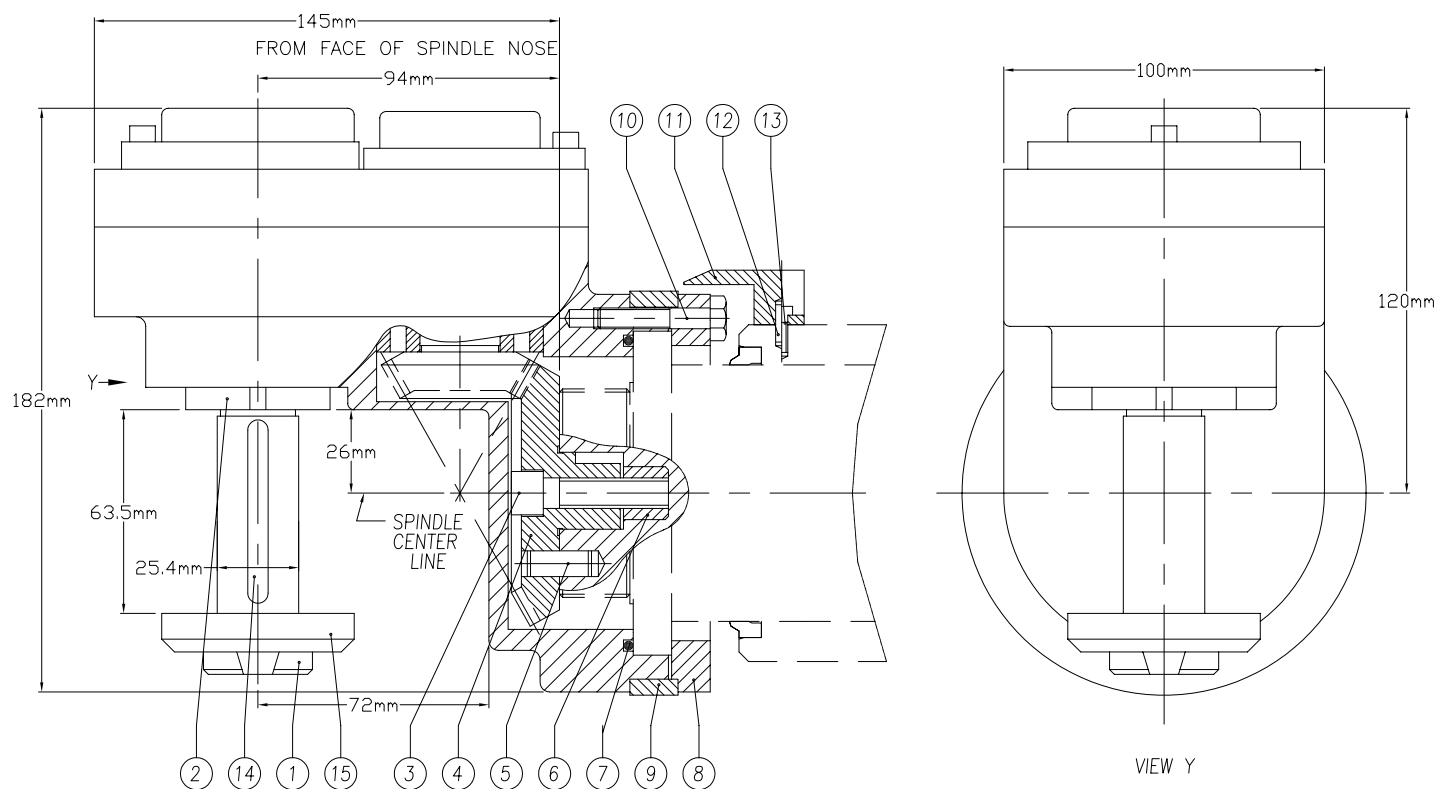


ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M16/32
2	1	SHANK (SIZE 1.25" x 58mm)	6.19.150
3	1	SOCKET HEAD CAP SCREW	M10 x 45mm
4	1	BEVEL GEAR	6.19.166
5	1	DOWEL PIN	8 x 20mm
6	1	THREADED BUSHING	6.19.143
7	1	O-RING	ORM 0880-30
8	1	FLANGE CLAMP	6.19.144
9	1	CALIBRATION RING	6.19.145
10	8	BOLT	M8 x 25mm
11	1	INDICATOR	6.19.146
12	1	DOWEL PIN	4 x 10mm
13	2	SOCKET HEAD CAP SCREW	M5 x 14mm
14	1	KEY (IF APPLICABLE)	8 x 7 x 50mm
15	1	WRENCH HOOK SPANNER	61350 #32
16	1	WRENCH HOOK SPANNER	73900 58-62mm

SECTION 7: MILLING HEADS

FK 36-1/5.5 FQ.....6.19.011-2

TOOLHEAD SPECIFICATIONS		
MAX. MILLING CUTTER DIAMETER		5.5"
MAXIMUM RPM		1000
SHANK SIZE		1" x 2.5"
GEAR RATIO:	TOOLSPINDLE INPUT RPM	MILLING ARBOR OUTPUT RPM
	1.12	1



ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	LOCKING SCREW	61340 M12/27
2	1	SHANK (SIZE 1" x 2.5")	6.19.013-2
3	1	SOCKET HEAD CAP SCREW	M10 x 40mm
4	1	BEVEL GEAR	6.19.177
5	1	DOWEL PIN	8 x 20mm
6	1	THREADED BUSHING	6.19.143
7	1	O-RING	OR-4362
8	1	FLANGE CLAMP	6.19.176
9	1	CALIBRATION RING	6.19.175
10	8	BOLT	M8 x 35mm
11	1	INDICATOR	6.19.178
12	1	DOWEL PIN	4 x 10mm
13	2	SOCKET HEAD CAP SCREW	M5 x 12mm
14	1	KEY (IF APPLICABLE)	1/4x1/4x2 1/4"
15	1	CAP	
16	1	WRENCH HOOK SPANNER	61350 #27
17	1	WRENCH HOOK SPANNER	73900 45-50mm

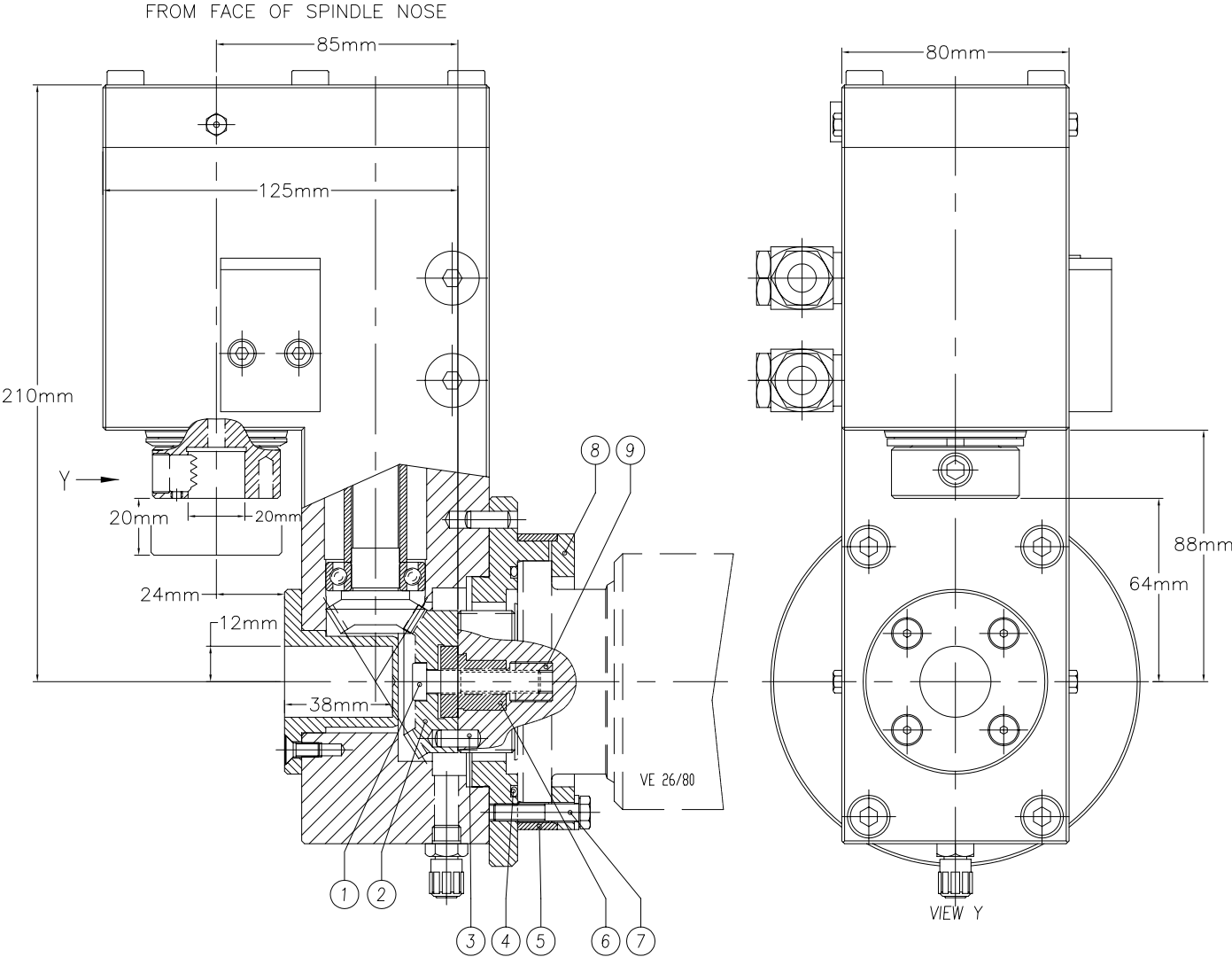
SECTION 8

CROSS DRILL HEAD ASSEMBLY

SECTION 8: CROSS DRILLING HEAD ASSY.

QBE 261-20/QC 83/16.....5.20.0102-1

TOOLHEAD SPECIFICATIONS	
DRILL HEAD	83212
DRILL STROKE	.787"
DRILLING CAPACITY	3/8"
GEAR REDUCTION RATIO	1:2
MAXIMUM RPM	4100



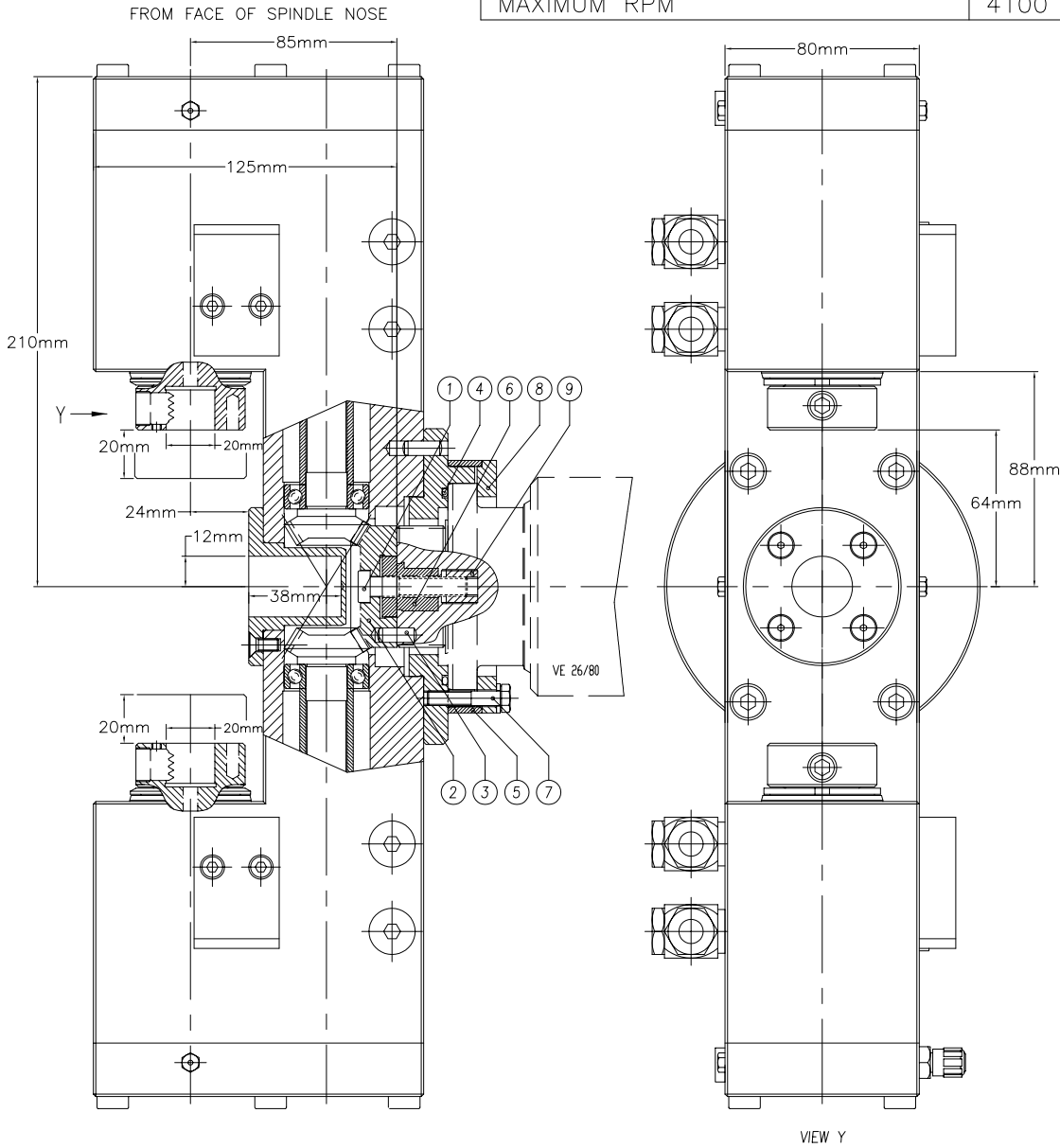
USE TORQUE WRENCH #S-0-060-048-02

ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	SOCKET HEAD CAP SCREW	M8 x 40mm
1	1	BEVEL GEAR	5.20.119-1
1	1	DOWEL PIN	8 x 16mm
1	1	O-RING	ORM 0690-30
1	1	CALIBRATION RING	5.19.405-1
1	1	CENTER PIVOT	5.19.321
1	8	BOLT	M6 x 30mm
1	1	FLANGE CLAMP	5.19.406
1	1	THREADED BUSHING	5.19.313

SECTION 8: CROSS DRILLING HEAD ASSY.

QBE 262-20/QC 83/16.....5.20.0102-2

TOOLHEAD SPECIFICATIONS	
DRILL HEAD	83212
DRILL STROKE	.787"
DRILLING CAPACITY	3/8"
GEAR REDUCTION RATIO	1:2
MAXIMUM RPM	4100



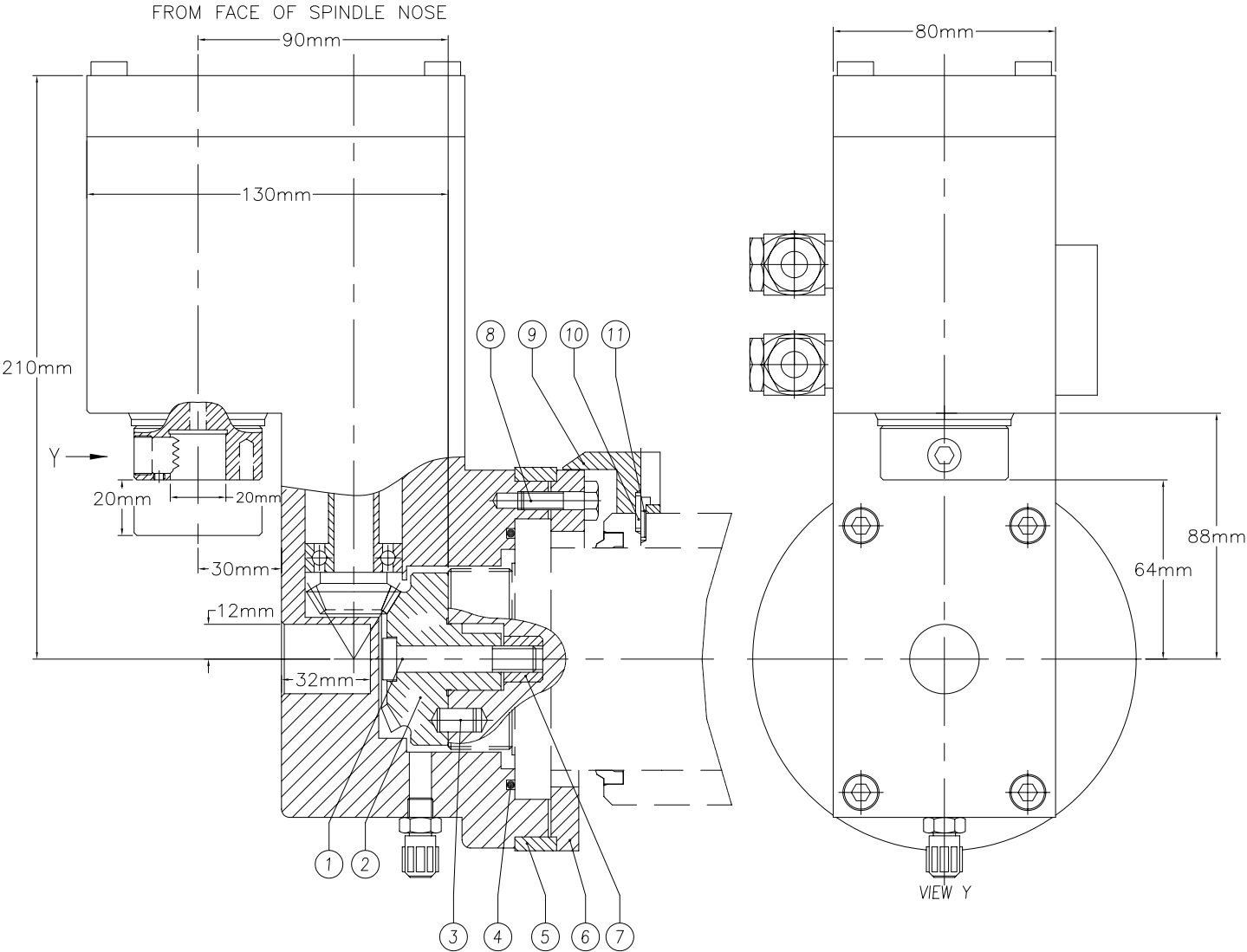
USE TORQUE WRENCH #S-0-060-048-02

ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	SOCKET HEAD CAP SCREW	M8 x 40mm
1	1	BEVEL GEAR	5.20.119-1
1	1	DOWEL PIN	8 x 16mm
1	1	O-RING	ORM 0690-30
1	1	CALIBRATION RING	5.19.405-1
1	1	CENTER PIVOT	5.19.321
1	8	BOLT	M6 x 30mm
1	1	FLANGE CLAMP	5.19.406
1	1	THREADED BUSHING	5.19.313

SECTION 8: CROSS DRILLING HEAD ASSY.

QBE 362-20/QC 83/16.....5.20.058-1

TOOLHEAD SPECIFICATIONS	
DRILL HEAD	83212
DRILL STROKE	.787"
DRILLING CAPACITY	3/8"
GEAR REDUCTION RATIO	1:1.6
MAXIMUM RPM	4100



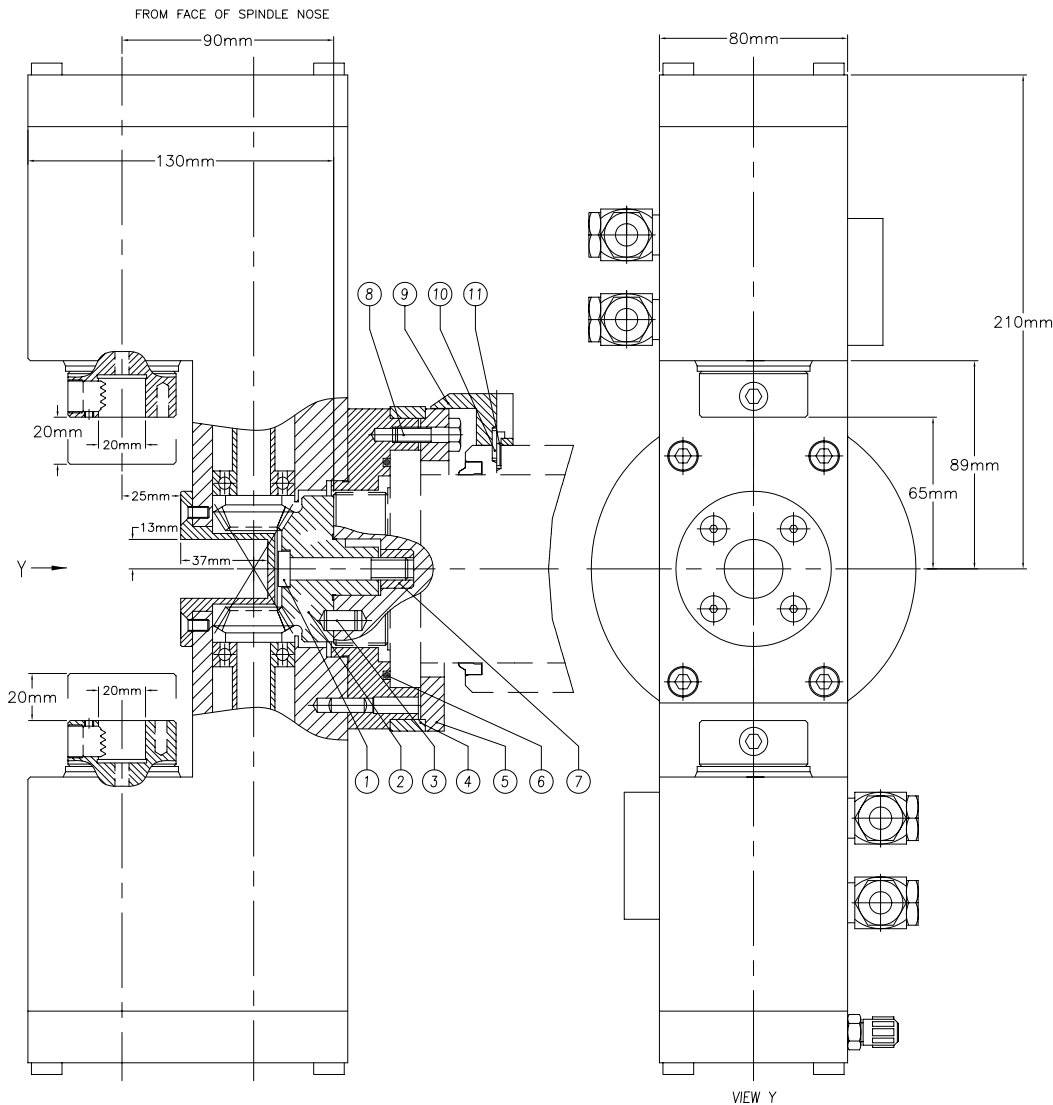
USE TORQUE WRENCH #S-0-060-048-02

ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	SOCKET HEAD CAP SCREW	M8 x 50mm
2	1	BEVEL GEAR	5.20.345
3	1	DOWEL PIN	8 x 14mm
4	1	O-RING	ORM 0880-30
5	1	CALIBRATION RING	6.19.145
6	1	FLANGE CLAMP	6.19.144
7	1	THREADED BUSHING	5.20.305
8	8	BOLT	M8 x 25mm
9	1	INDICATOR	6.19.146
10	1	DOWEL PIN	4 x 10mm
11	2	SOCKET HEAD CAP SCREW	M5 x 14mm

SECTION 8: CROSS DRILLING HEAD ASSY.

QBE 362-20/QC 83/16.....5.20.057-2

TOOLHEAD SPECIFICATIONS	
DRILL HEAD	83212
DRILL STROKE	.787"
DRILLING CAPACITY	3/8"
GEAR REDUCTION RATIO	1:1.6
MAXIMUM RPM	4100



USE TORQUE WRENCH #S-0-060-048-02

ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	SOCKET HEAD CAP SCREW	M8 x 50mm
2	1	BEVEL GEAR	5.20.345
3	1	DOWEL PIN	8 x 14mm
4	1	O-RING	ORM 0880-30
5	1	CALIBRATION RING	6.19.145
6	1	FLANGE CLAMP	6.19.144
7	1	THREADED BUSHING	5.20.305
8	8	BOLT	M8 x 25mm
9	1	INDICATOR	6.19.146
10	1	DOWEL PIN	4 x 10mm
11	2	SOCKET HEAD CAP SCREW	M5 x 14mm

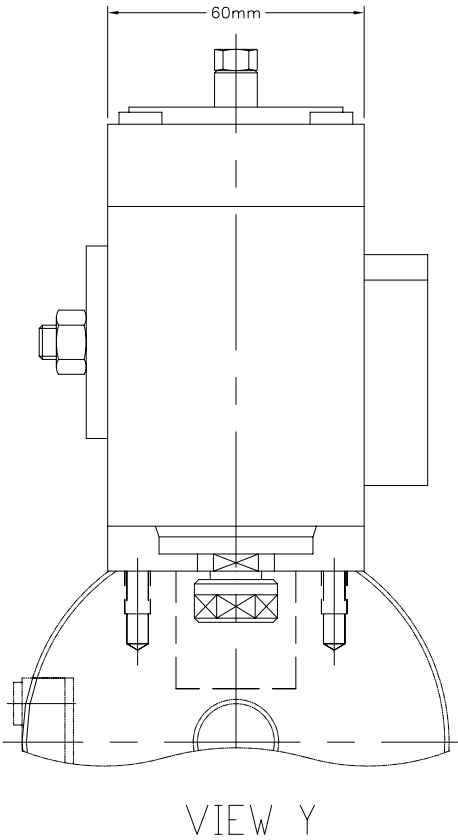
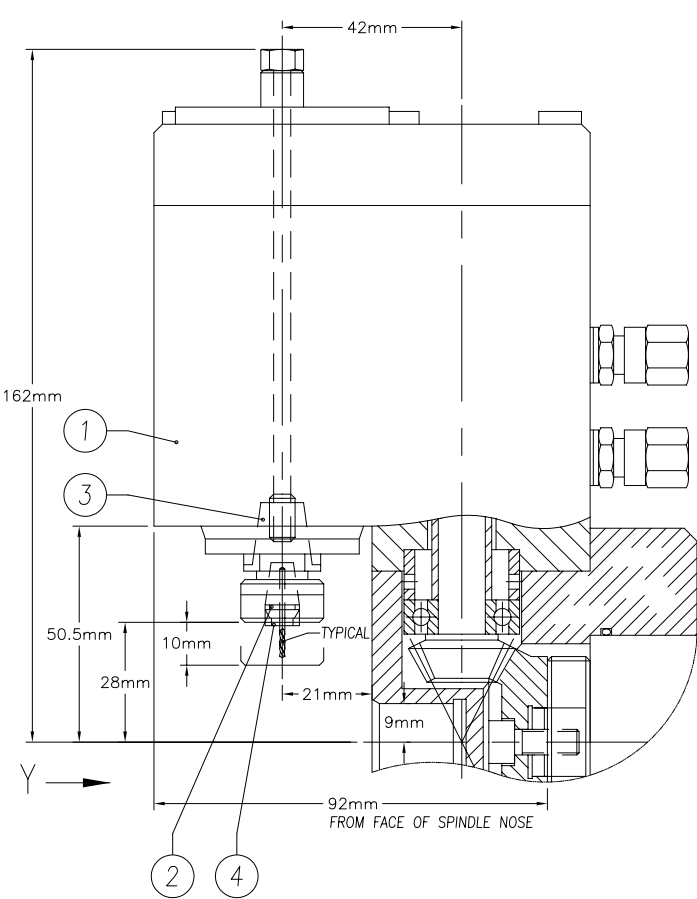
SECTION 9

CROSS DRILLING HEADS

SECTION 9: CROSS DRILLING HEADS

QBE 20-10/11.....5.20.072-7

TOOLHEAD SPECIFICATIONS	
COLLET SIZE	ER11
DRILL STROKE	.394"
DRILLING CAPACITY	7/16"
GEAR REDUCTION RATIO	1:2
MAXIMUM RPM	4100



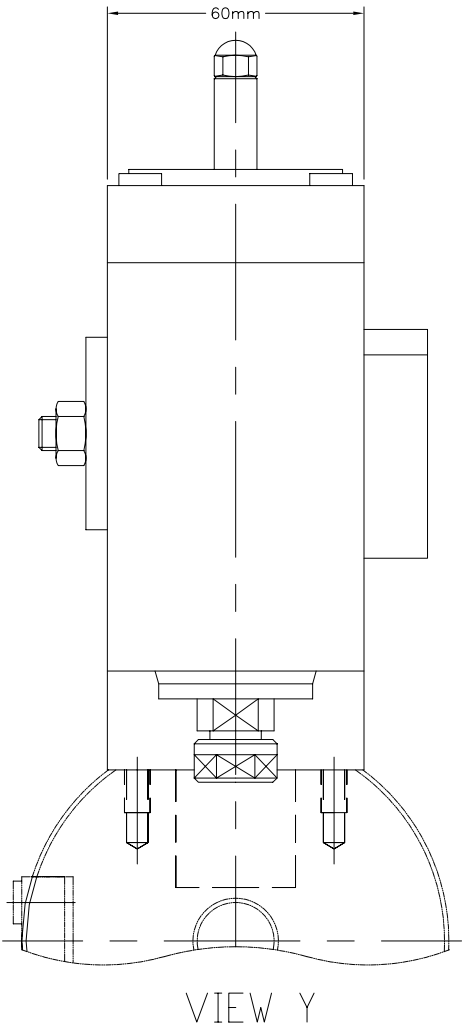
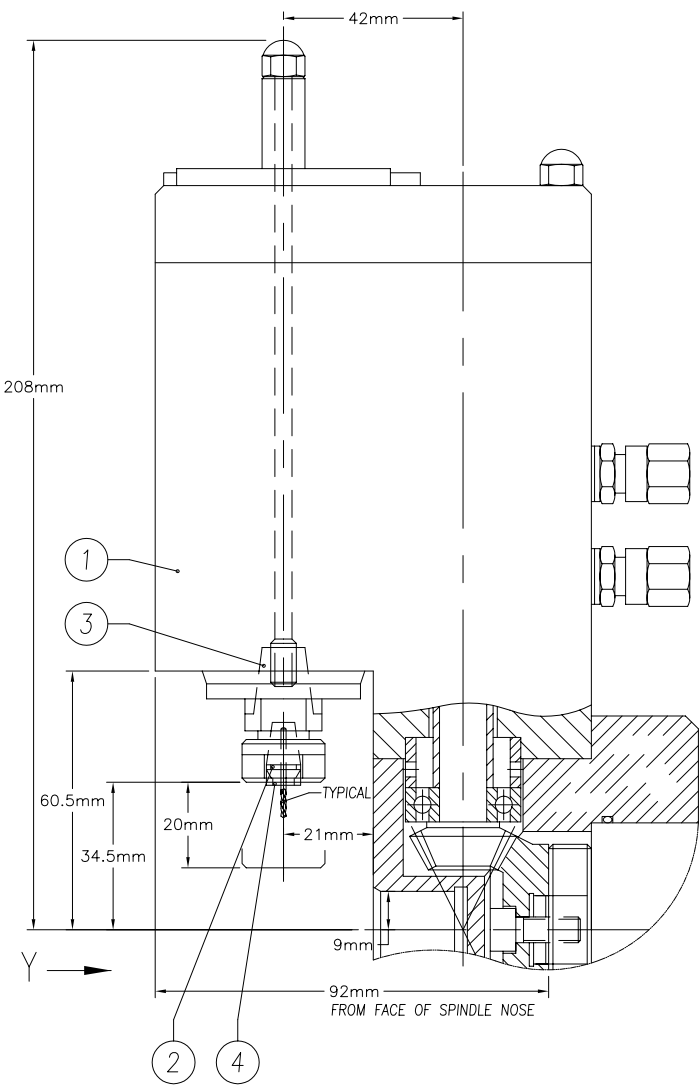
ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CROSS DRILLING HEAD	5.20.072-7
2*	1	COLLET (RANGE .5-7mm)	ER11
3*	1	COLLET HOLDER ER11	5.20.011
4*	1	CLAMP NUT	911120
5*	1	WRENCH OPEN END (10mm)	72102-10mm
6*	1	WRENCH OPEN END (17mm)	72102-17mm

* NOT INCLUDED WITH TOOLHEAD

SECTION 9: CROSS DRILLING HEADS

QBE 20-20/11.....5.20.069-3

TOOLHEAD SPECIFICATIONS	
COLLET SIZE	ER11
DRILL STROKE	.787"
DRILLING CAPACITY	7/16"
GEAR REDUCTION RATIO	1:2
MAXIMUM RPM	4100



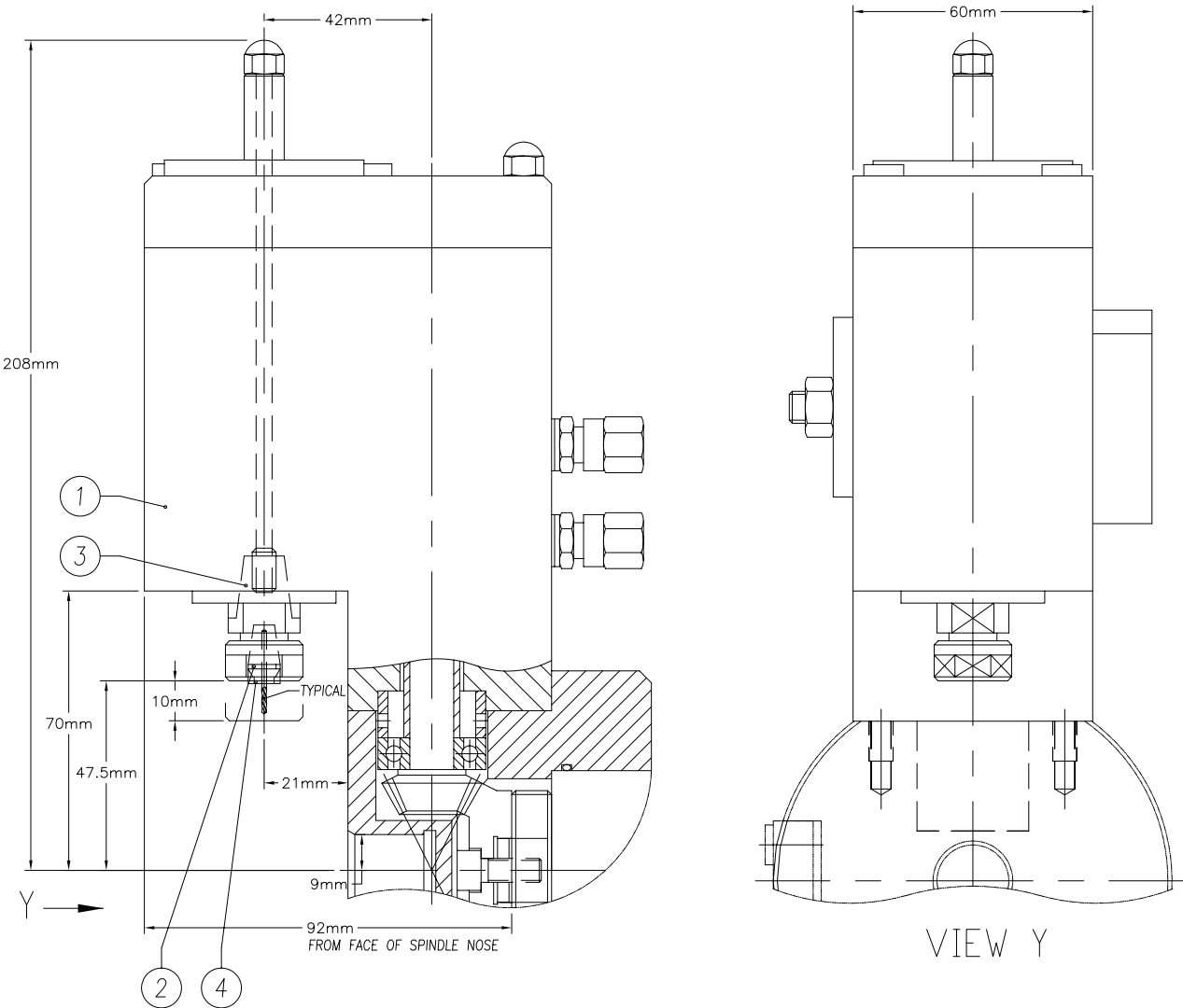
ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CROSS DRILLING HEAD	5.20.069-3
2*	1	COLLET (RANGE .5-7mm)	ER11
3*	1	COLLET HOLDER ER11	5.20.011
4*	1	CLAMP NUT	911120
5*	1	WRENCH OPEN END (10mm)	72102-10mm
6*	1	WRENCH OPEN END (17mm)	72102-17mm

* NOT INCLUDED WITH TOOLHEAD

SECTION 9: CROSS DRILLING HEADS

QBE 20-10/11 EH.....5.20.068-2

TOOLHEAD SPECIFICATIONS	
COLLET SIZE	ER11
DRILL STROKE	.394"
DRILLING CAPACITY	7/16"
GEAR REDUCTION RATIO	1:2
MAXIMUM RPM	4100



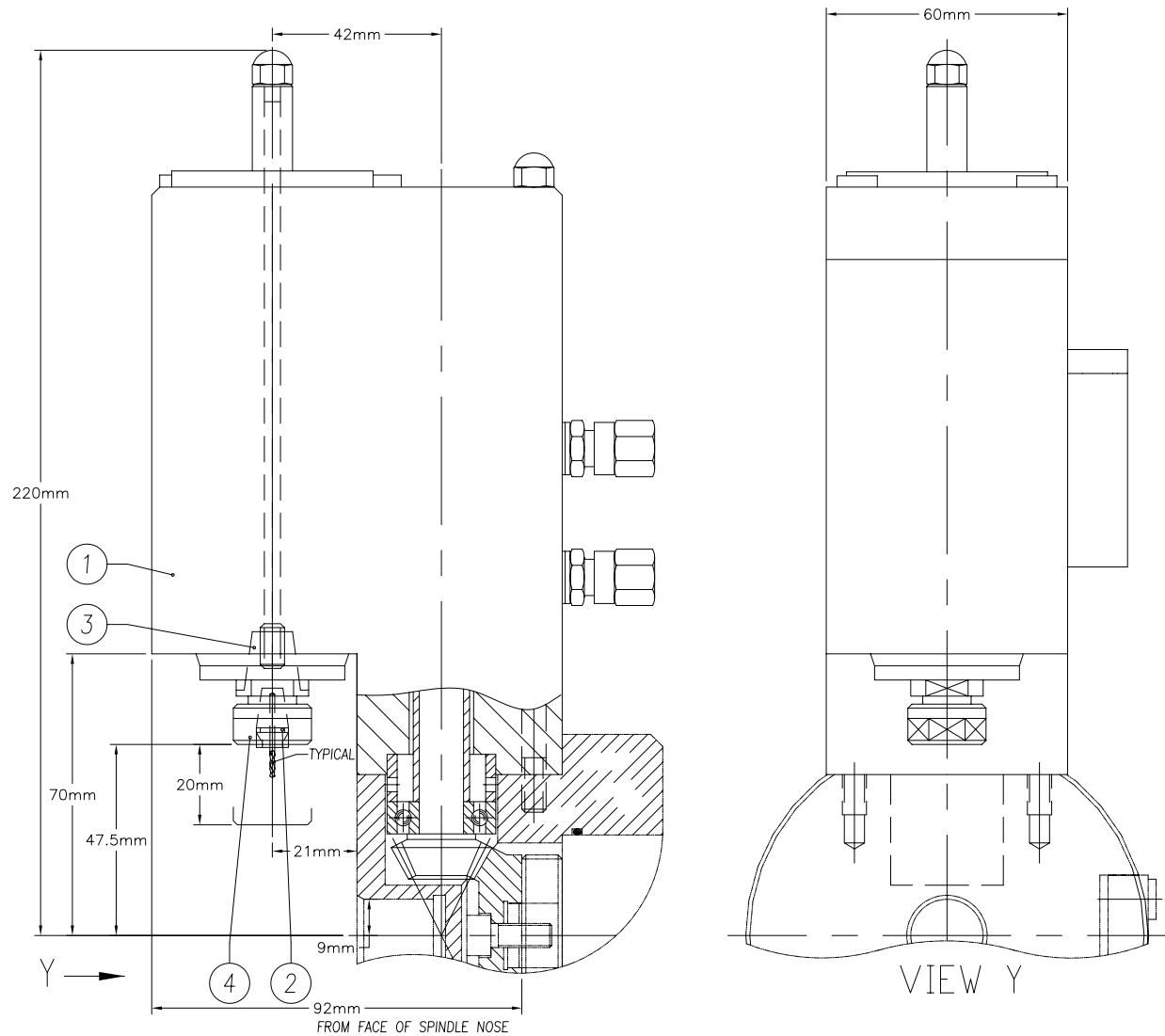
ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CROSS DRILLING HEAD	5.20.068-2
2*	1	COLLET (RANGE .5-7mm)	ER11
3*	1	COLLET HOLDER ER11	5.20.011
4*	1	CLAMP NUT	911120
5*	1	WRENCH OPEN END (10mm)	72102-10mm
6*	1	WRENCH OPEN END (17mm)	72102-17mm

* NOT INCLUDED WITH TOOLHEAD

SECTION 9: CROSS DRILLING HEADS

QBE 20-20/11 EH.....5.20.073-7

TOOLHEAD SPECIFICATIONS	
COLLET SIZE	ER11
DRILL STROKE	.787"
DRILLING CAPACITY	7/16"
GEAR REDUCTION RATIO	1:2
MAXIMUM RPM	4100



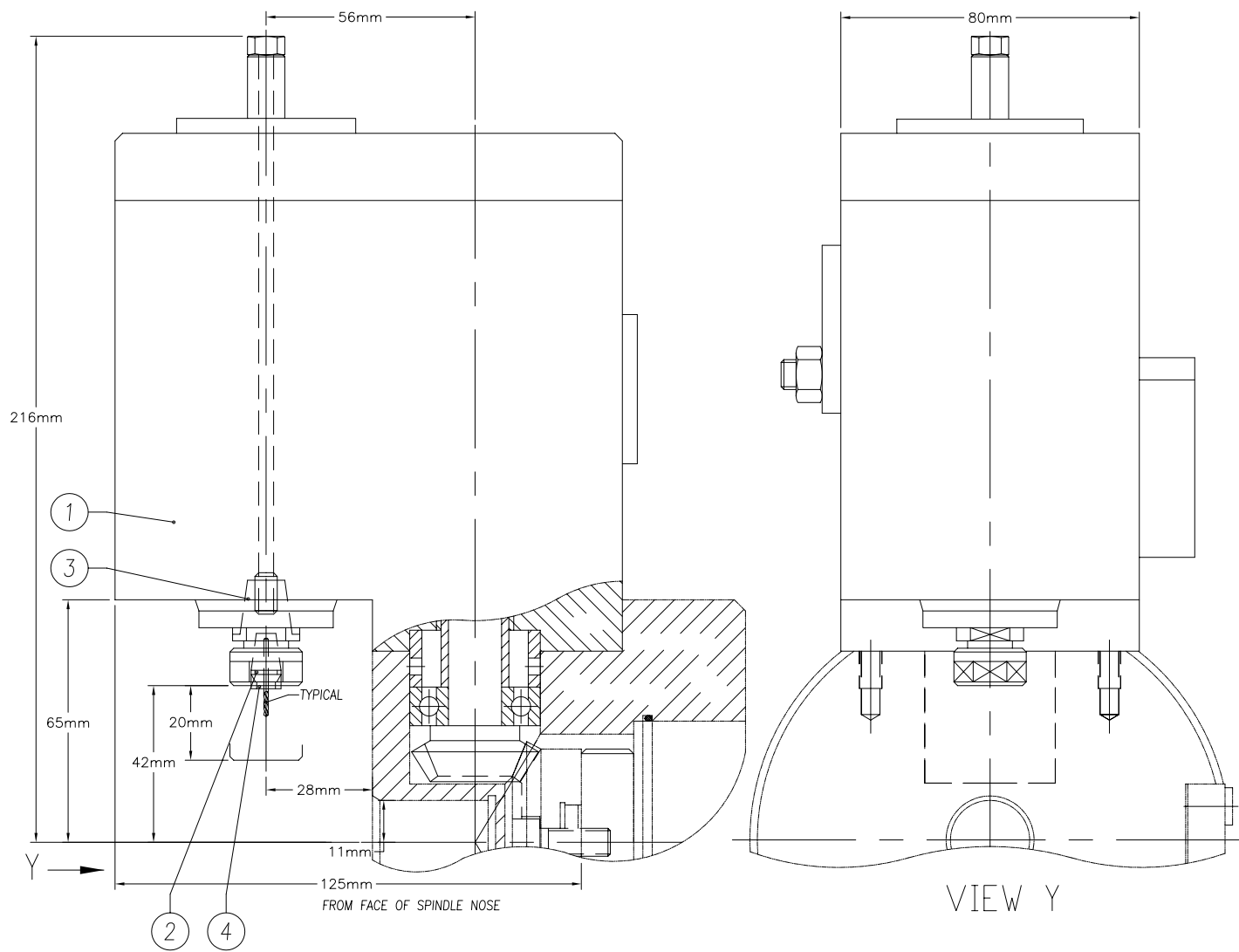
ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CROSS DRILLING HEAD	5.20.073-7
2*	1	COLLET (RANGE .5-7mm)	ER11
3*	1	COLLET HOLDER ER11	5.20.011
4*	1	CLAMP NUT	911120
5*	1	WRENCH OPEN END (10mm)	72102-10mm
6*	1	WRENCH OPEN END (17mm)	72102-17mm

* NOT INCLUDED WITH TOOLHEAD

SECTION 9: CROSS DRILLING HEADS

QBE 30-20/16.....5.20.070

TOOLHEAD SPECIFICATIONS	
COLLET SIZE	ER16
DRILL STROKE	.787"
DRILLING CAPACITY	5/8"
GEAR REDUCTION RATIO	1:1.6
MAXIMUM RPM	4100



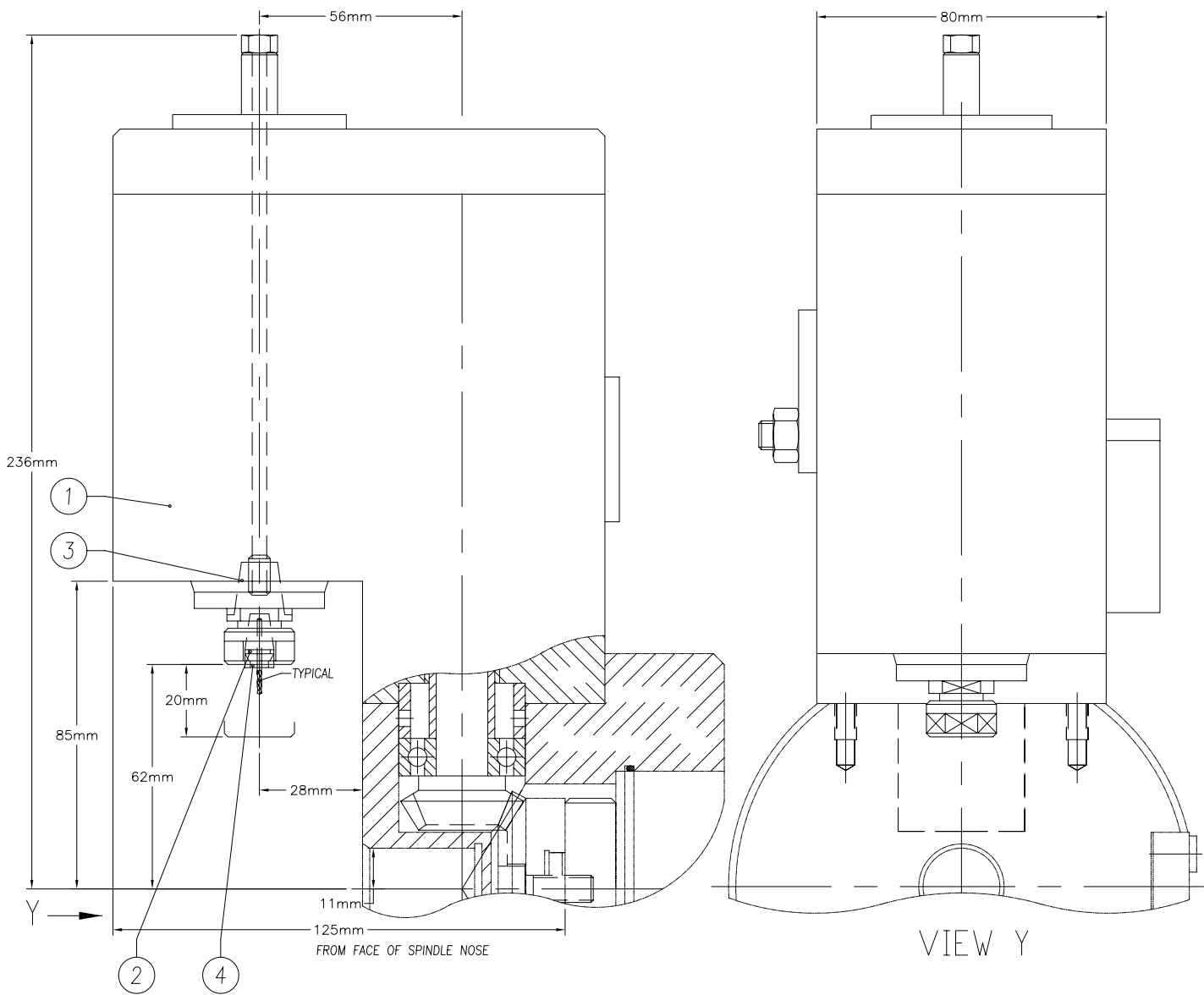
ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CROSS DRILLING HEAD	5.20.070
2*	1	COLLET (RANGE .5-10mm)	ER16
3*	1	COLLET HOLDER ER16	5.20.015
4*	1	CLAMP NUT	916100
5*	1	SPANNER WRENCH	916160
6*	1	WRENCH OPEN END (13mm)	72102-13mm

* NOT INCLUDED WITH TOOLHEAD

SECTION 9: CROSS DRILLING HEADS

QBE 30-20/16 EH.....5.20.075

TOOLHEAD SPECIFICATIONS	
COLLET SIZE	ER16
DRILL STROKE	.787"
DRILLING CAPACITY	5/8"
GEAR REDUCTION RATIO	1:1.6
MAXIMUM RPM	4100



ITEM	QTY.	DESCRIPTION	PART NUMBER
1	1	CROSS DRILLING HEAD	5.20.075
2*	1	COLLET (RANGE .5-10mm)	ER16
3*	1	COLLET HOLDER ER16	5.20.015
4*	1	CLAMP NUT	916100
5*	1	SPANNER WRENCH	916160
6*	1	WRENCH OPEN END (13mm)	72102-13mm

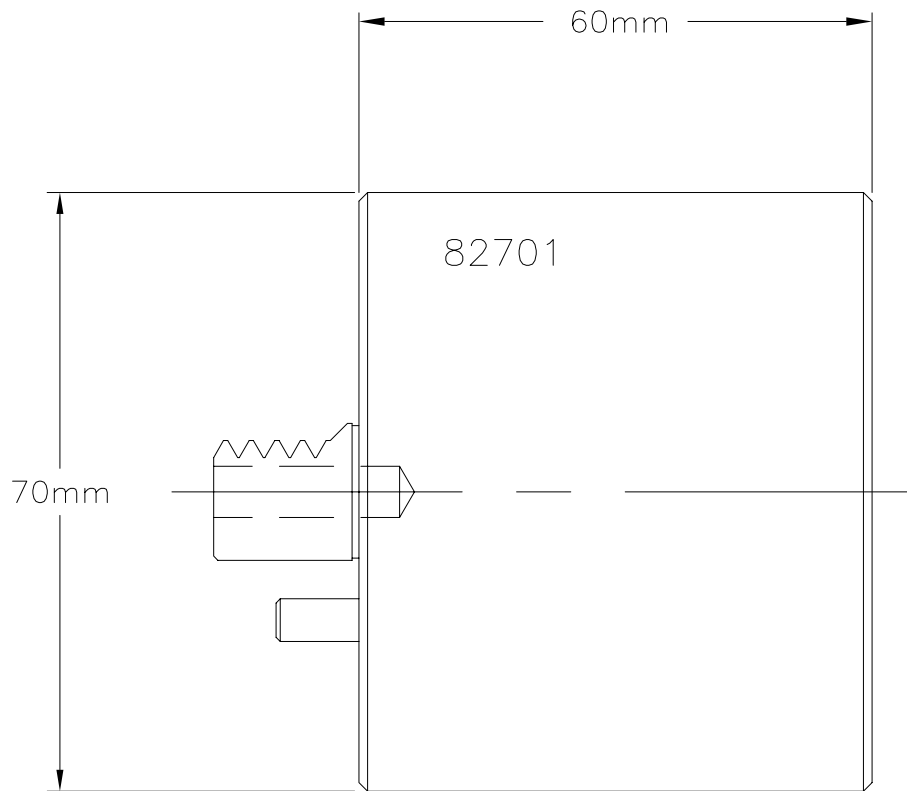
* NOT INCLUDED WITH TOOLHEAD

SECTION 10

BLANK HEADS

SECTION 10: BLANK HEADS

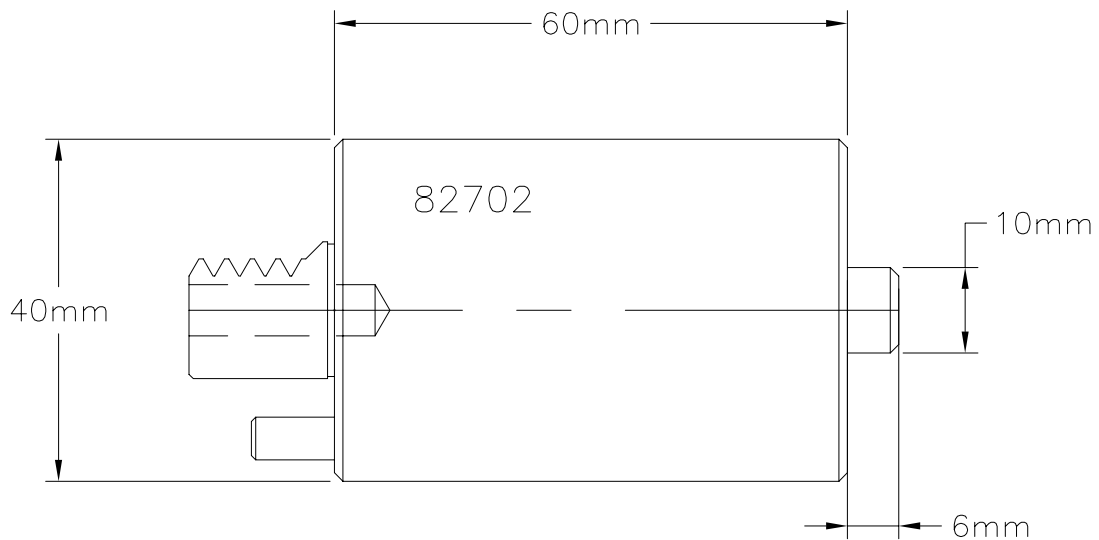
BLANK HEAD QC 82/70.....82701



USE TORQUE WRENCH #S-0-060-048-01

SECTION 10: BLANK HEADS

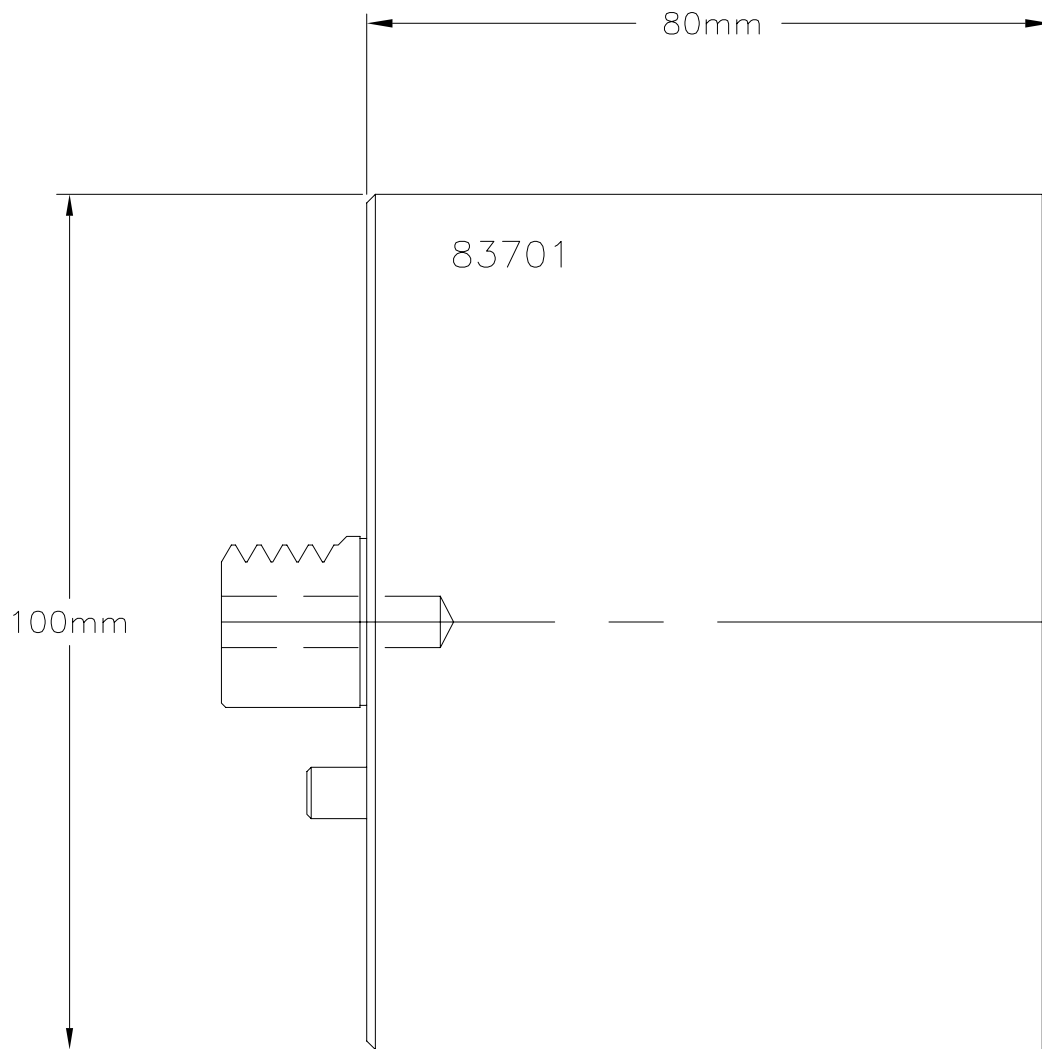
BLANK HEAD QC 82/40.....82702



USE TORQUE WRENCH #S-0-060-048-01

SECTION 10: BLANK HEADS

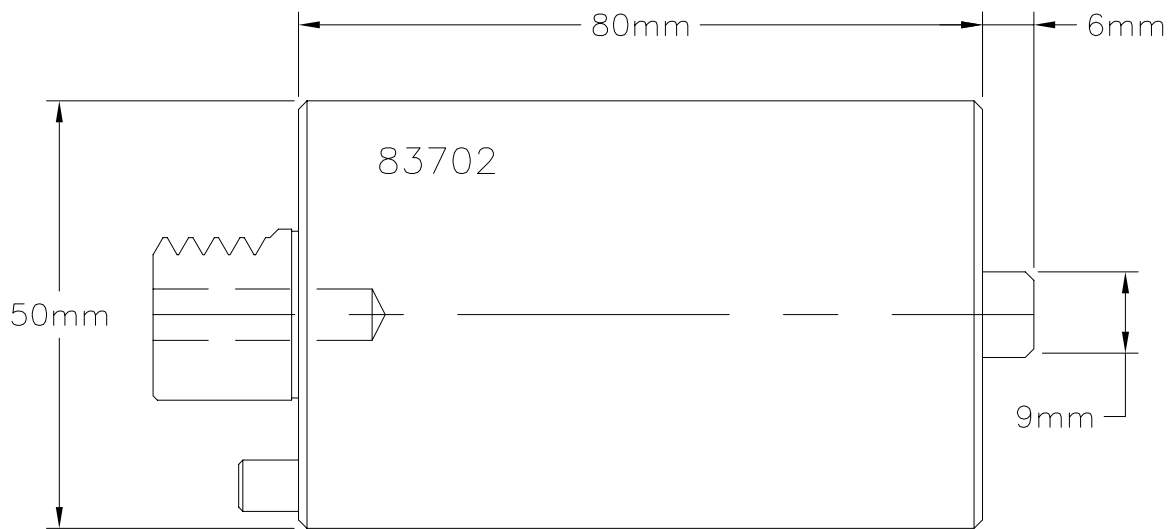
BLANK HEAD QC 83/100.....83701



USE TORQUE WRENCH #S-0-060-048-02

SECTION 10: BLANK HEADS

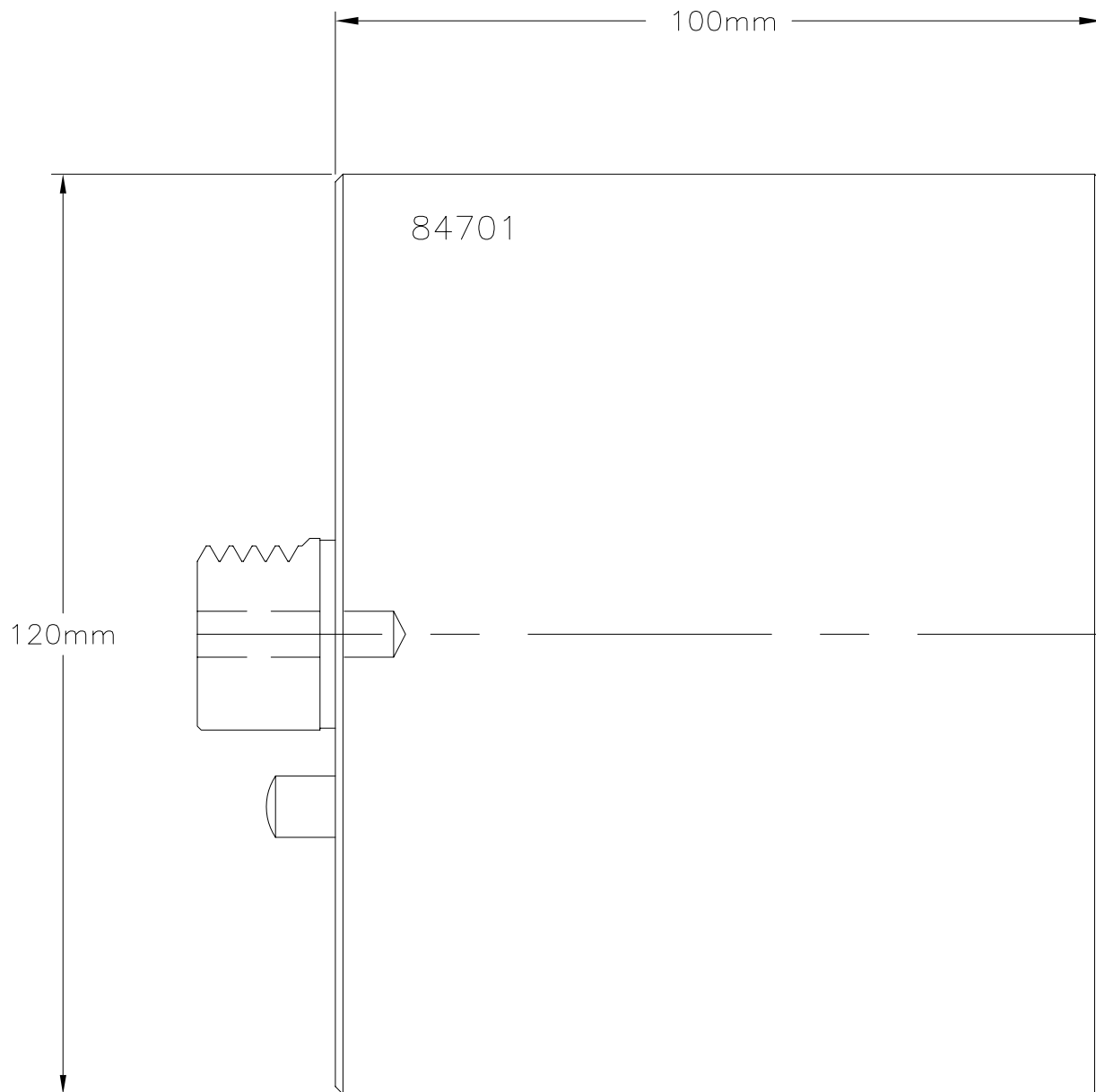
BLANK HEAD QC 83/50.....83702



USE TORQUE WRENCH #S-0-060-048-02

SECTION 10: BLANK HEADS

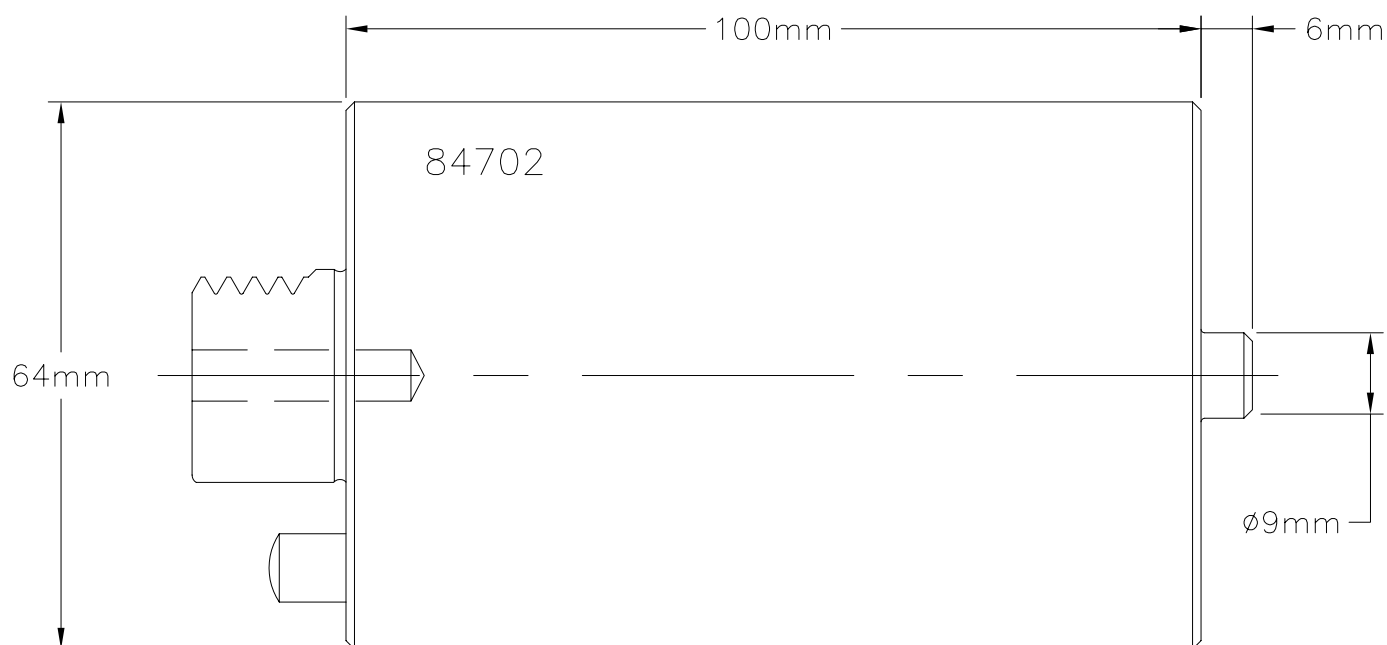
BLANK HEAD QC 84/120.....84701



USE TORQUE WRENCH #S-0-060-048-03

SECTION 10: BLANK HEADS

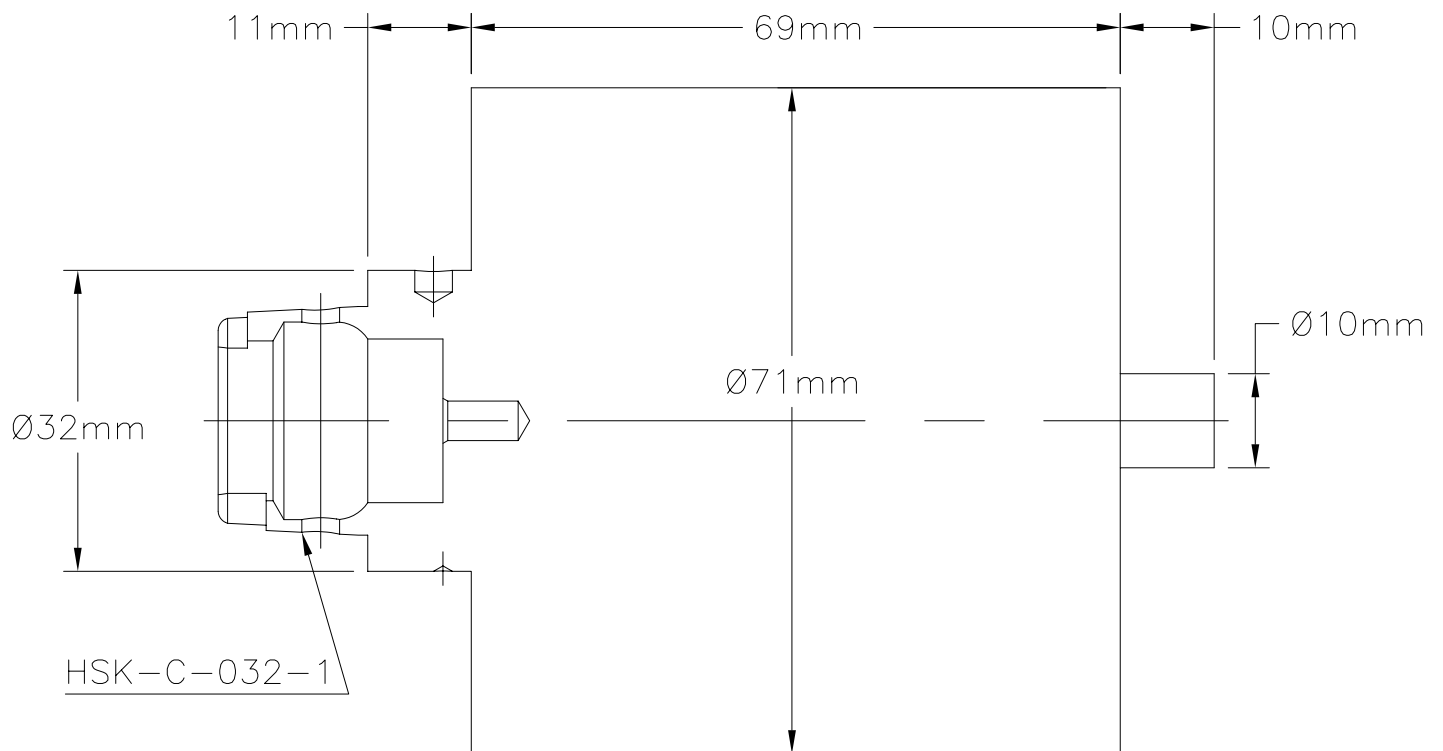
BLANK HEAD QC 84/64.....84702



USE TORQUE WRENCH #S-0-060-048-03

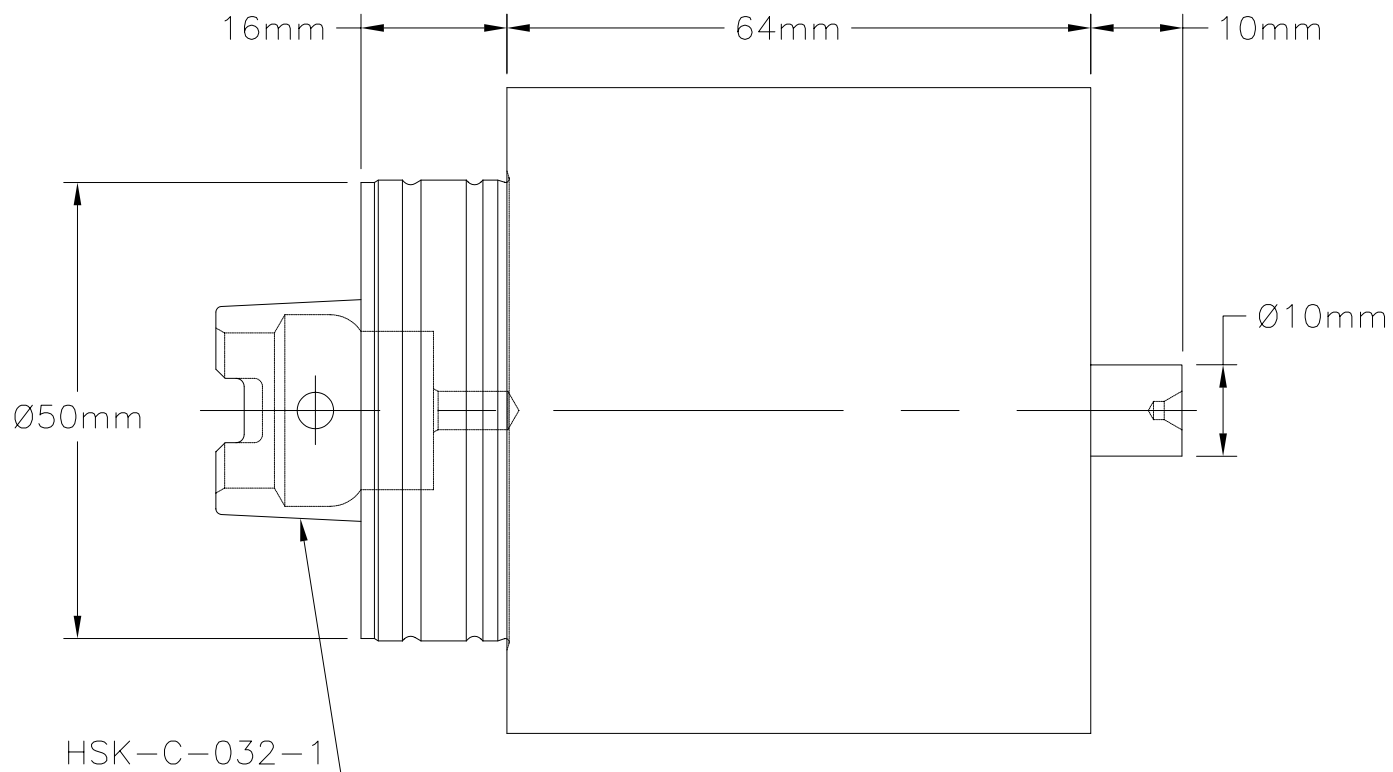
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-32.....HC032HF071080



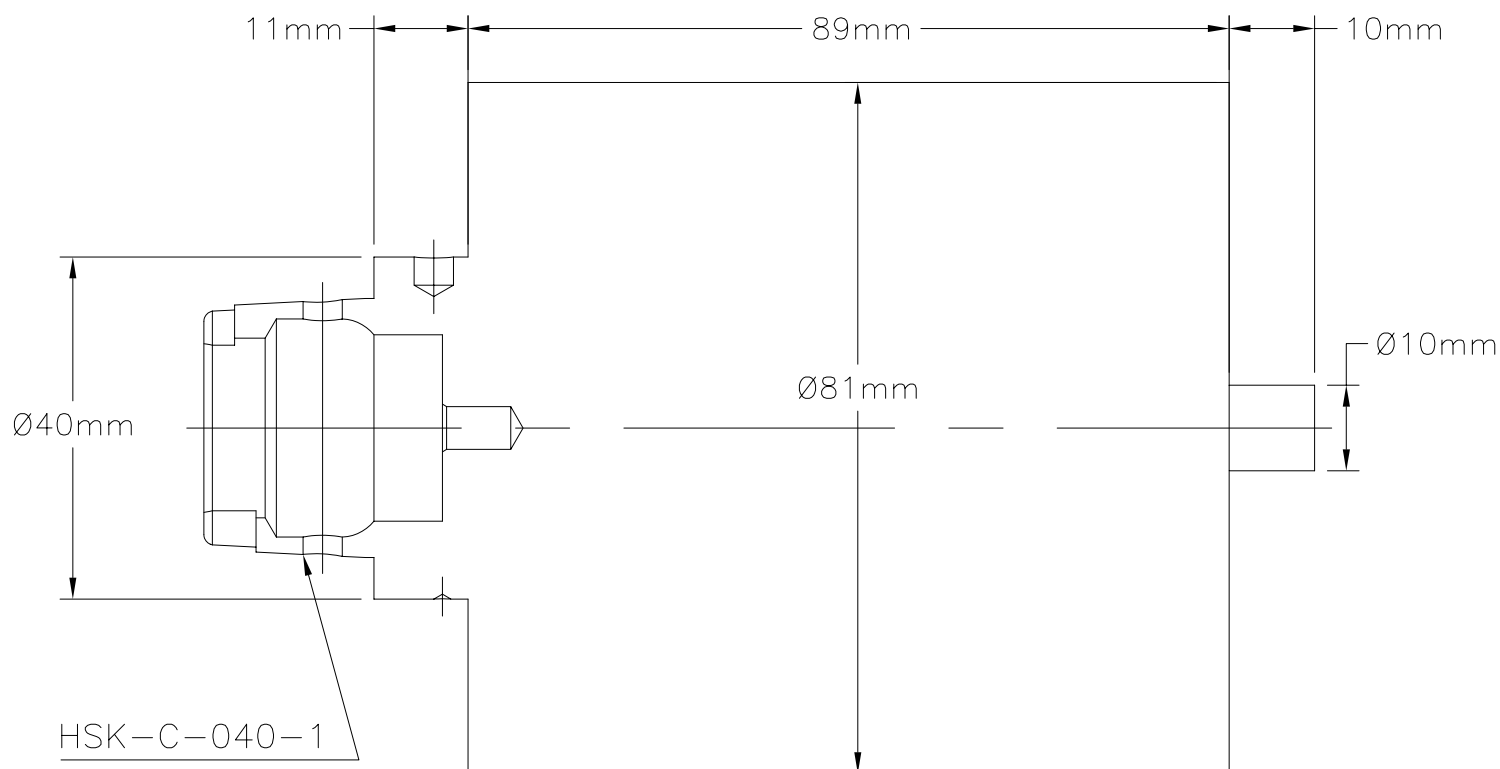
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-32.....HBC32HF071080



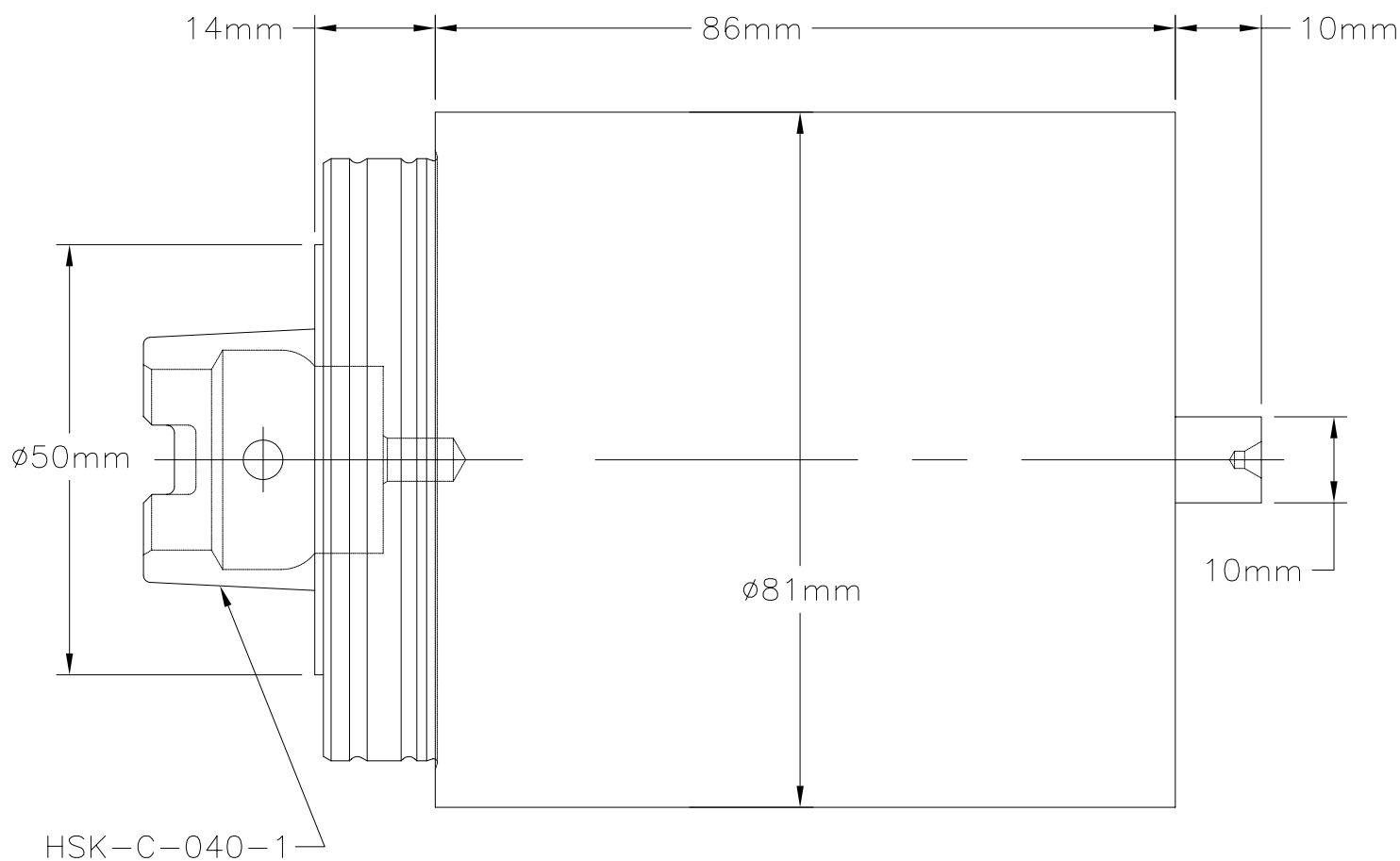
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-40.....HC040HF081100



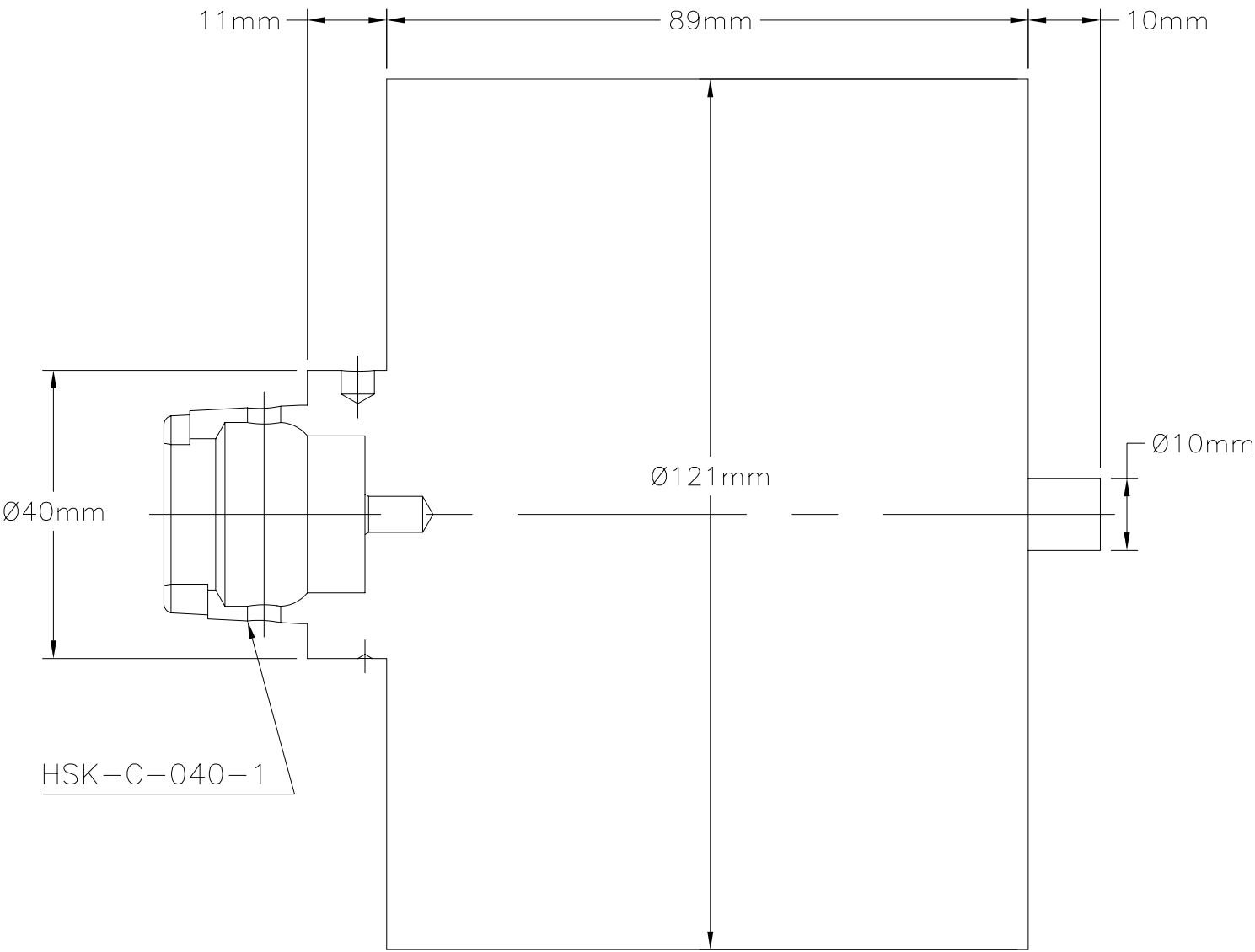
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-40.....HBC40HF081100



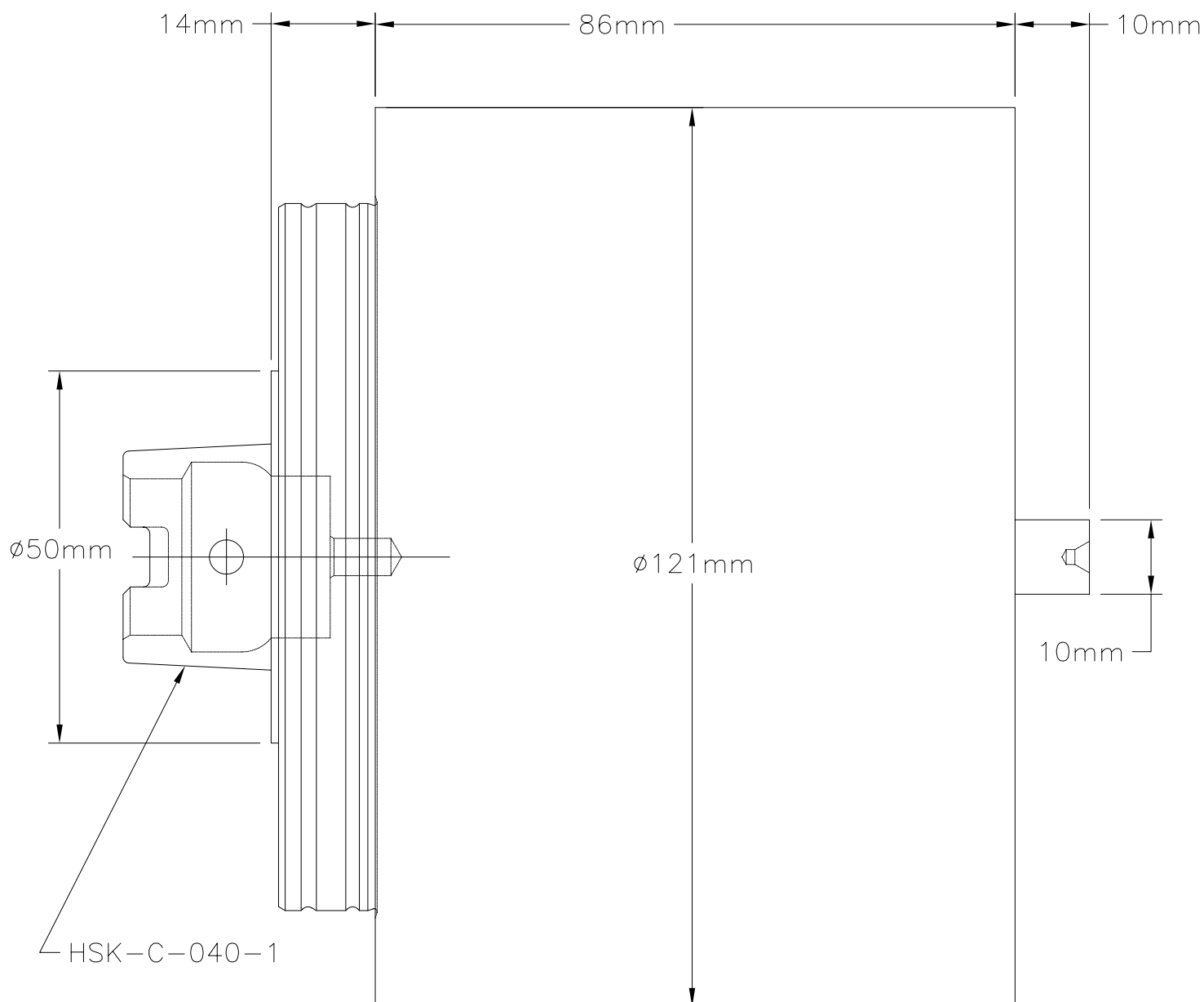
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-40.....HC040HF121100



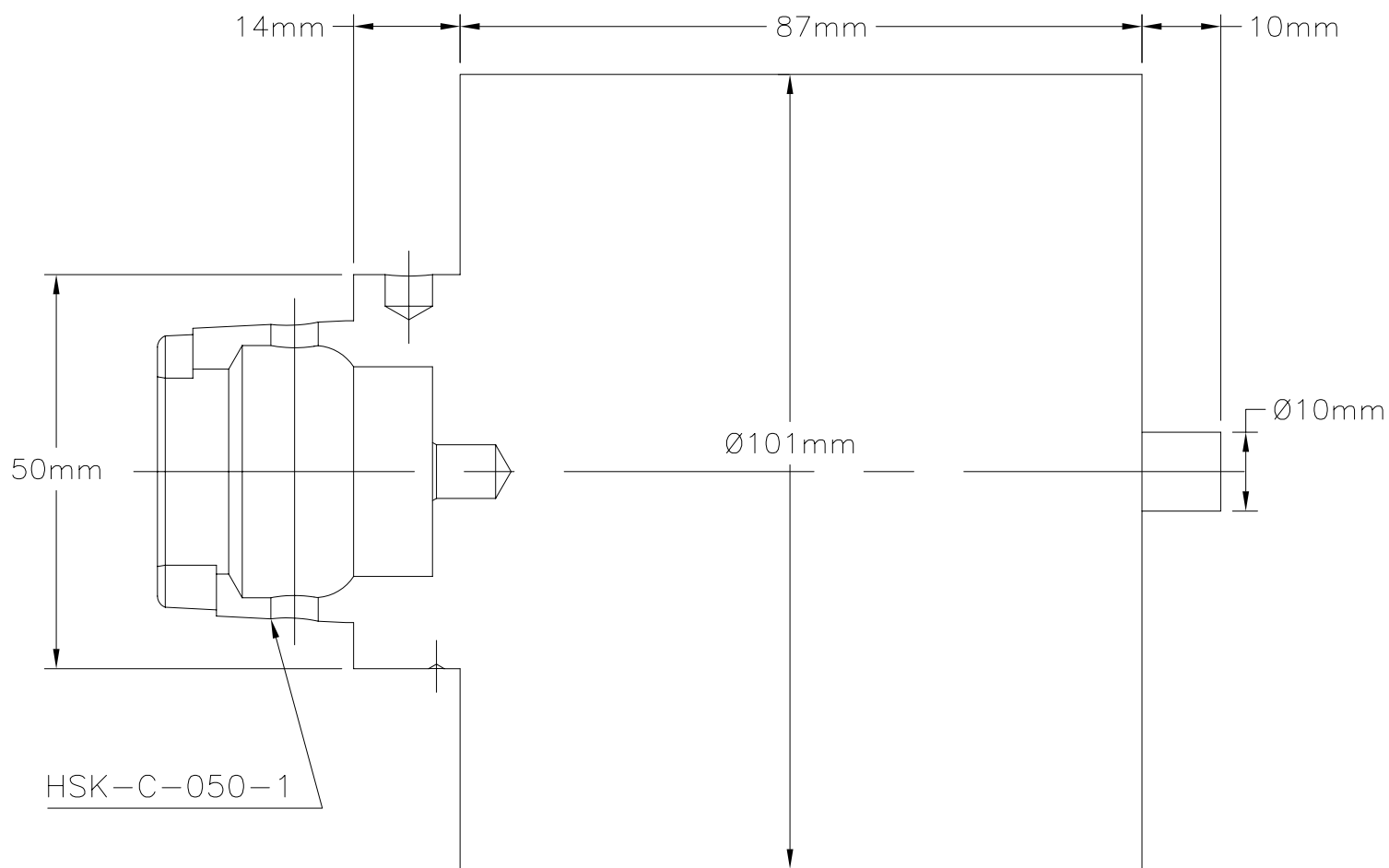
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-40.....HBC40HF121100.



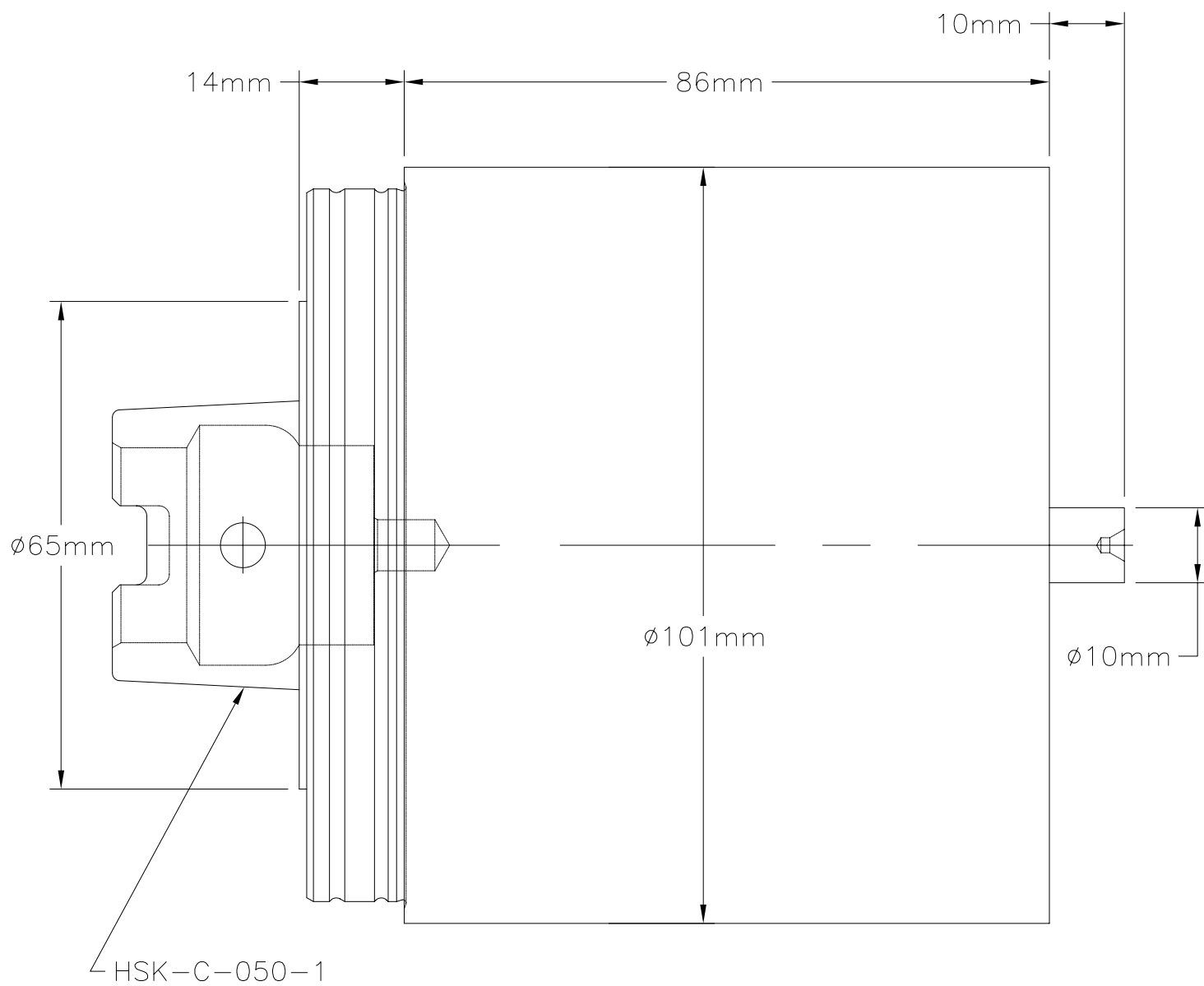
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-50.....HC050HF101100



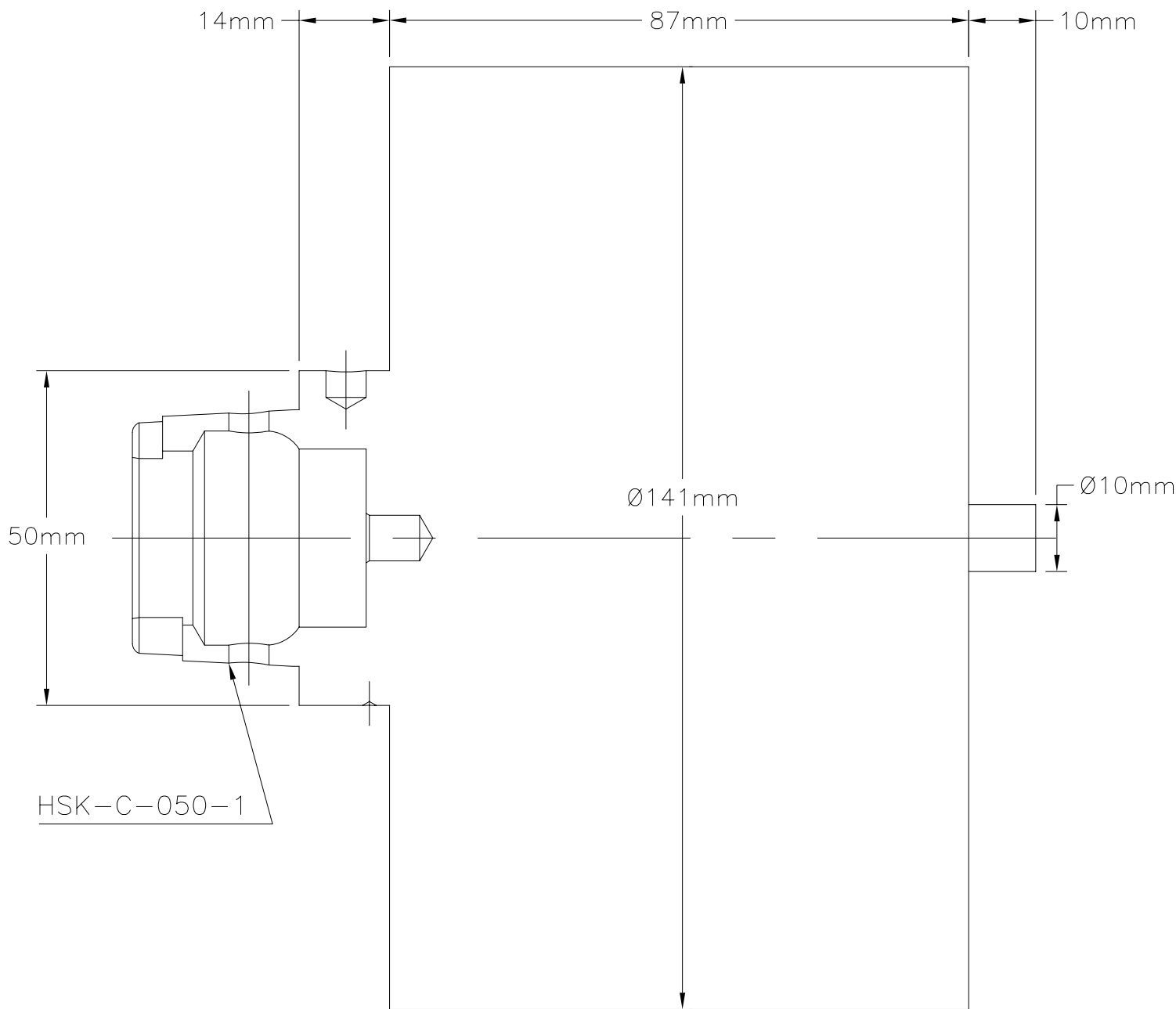
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-50.....HBC50HF101100



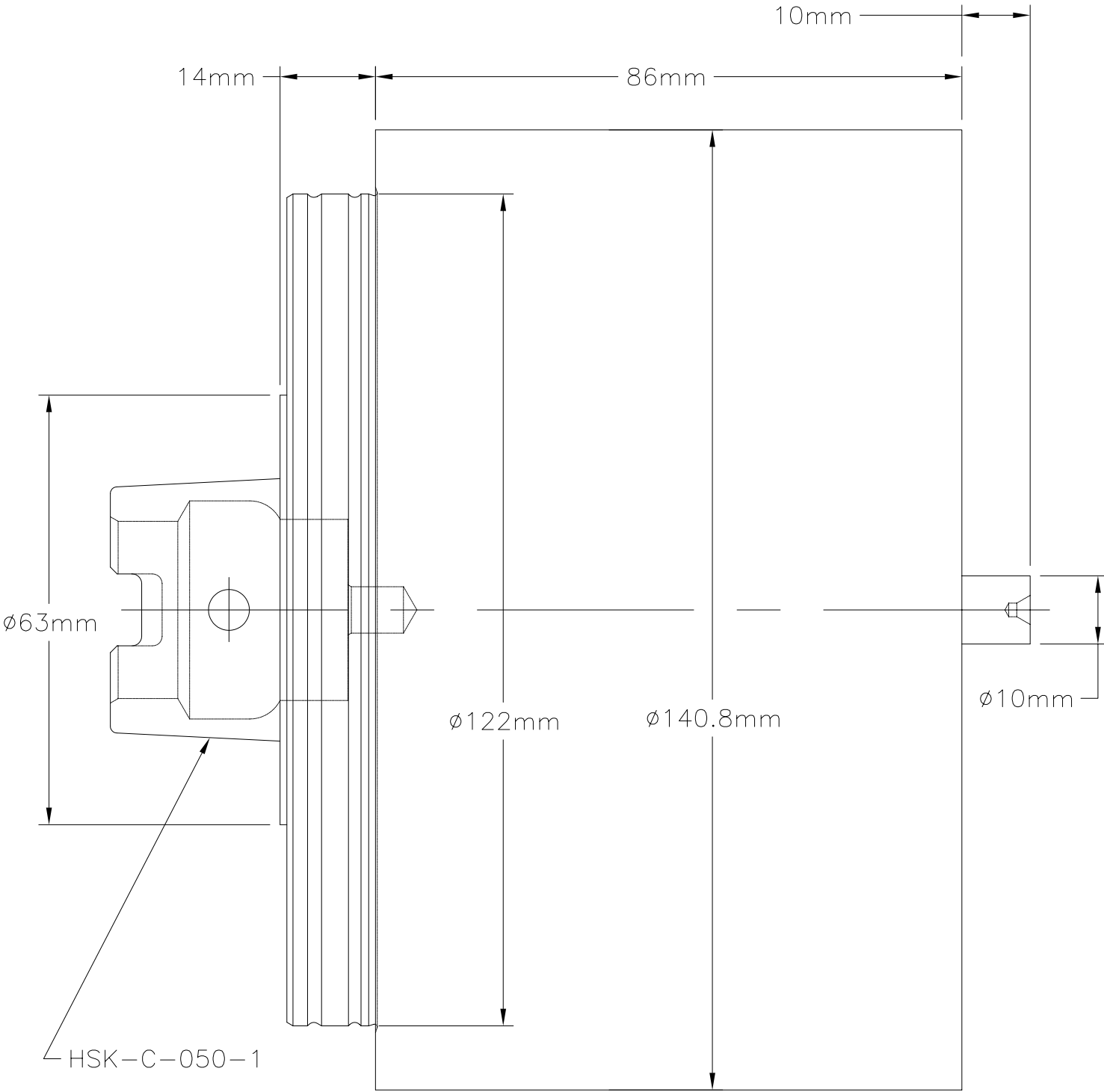
SECTION 10: BLANK HEADS

BLANK HEAD HSK C-50.....HC050HF141100.



SECTION 10: BLANK HEADS

BLANK HEAD HSK C-50.....HBC50HF141100



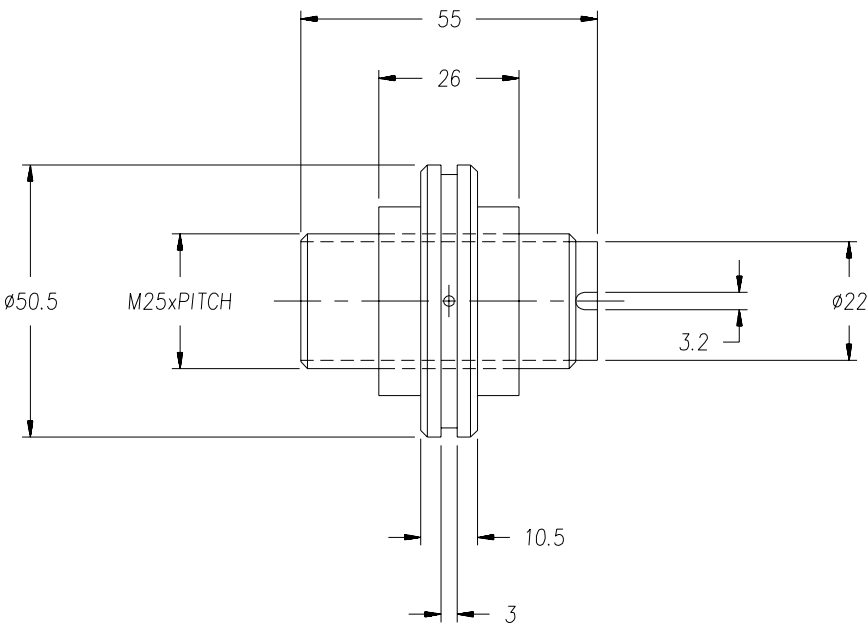
SECTION 11

MISC. ITEMS

SECTION 11: APPENDIX

4. THREADING UNIT 20/50 LEAD SCREW

5.21.017-PITCH (METRIC) 5.21.018-PITCH (INCH)



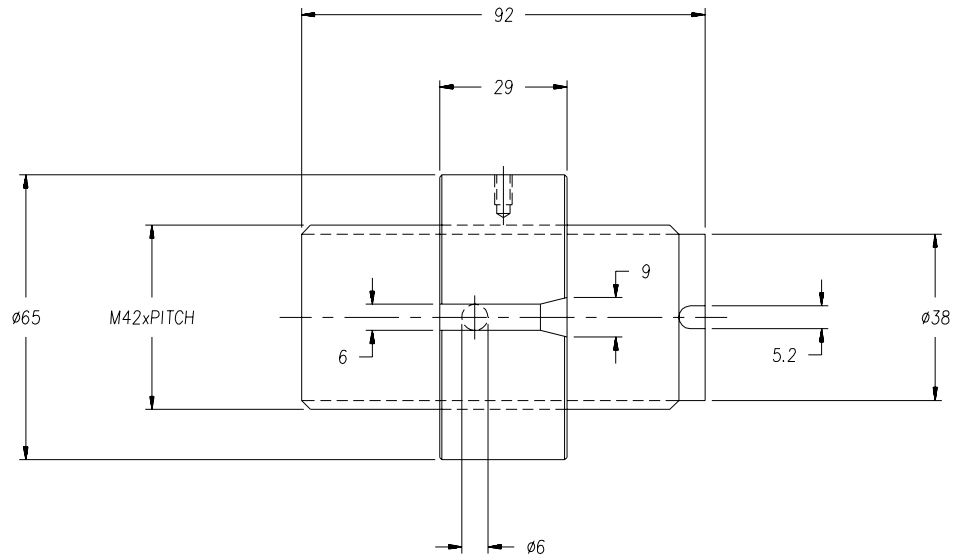
ITEM	QTY.	DESCRIPTION	PITCH	L/R	PART NUMBER
1	1	LEADSCREW 20/50 METRIC PITCH	.7	RH	5.21.017-0.7
2	1	LEADSCREW 20/50 METRIC PITCH	.75	RH	5.21.017-0.75
3	1	LEADSCREW 20/50 METRIC PITCH	1	RH	5.21.017-1
4	1	LEADSCREW 20/50 METRIC PITCH	1.25	RH	5.21.017-1.25
5	1	LEADSCREW 20/50 METRIC PITCH	1.5	RH	5.21.017-1.5
6	1	LEADSCREW 20/50 INCH PITCH	14	RH	5.21.018-14G
7	1	LEADSCREW 20/50 INCH PITCH	15	RH	5.21.018-15G
8	1	LEADSCREW 20/50 INCH PITCH	16	RH	5.21.018-16G
9	1	LEADSCREW 20/50 INCH PITCH	18	RH	5.21.018-18G
10	1	LEADSCREW 20/50 INCH PITCH	20	RH	5.21.018-20G
11	1	LEADSCREW 20/50 INCH PITCH	24	RH	5.21.018-24G
12	1	LEADSCREW 20/50 INCH PITCH	25	RH	5.21.018-25G
13	1	LEADSCREW 20/50 INCH PITCH	27	RH	5.21.018-27G
14	1	LEADSCREW 20/50 INCH PITCH	28	RH	5.21.018-28G
15	1	LEADSCREW 20/50 INCH PITCH	30	RH	5.21.018-30G
16	1	LEADSCREW 20/50 INCH PITCH	32	RH	5.21.018-32G
17	1	LEADSCREW 20/50 INCH PITCH	36	RH	5.21.018-36G
18	1	LEADSCREW 20/50 INCH PITCH	40	RH	5.21.018-40G

OTHER RIGHT HAND AND LEFT HAND SIZES AVAILABLE UPON REQUEST

SECTION 11: APPENDIX

5. THREADING UNIT 30/60, 45/60, AND 45/80 LEAD SCREW

5.21.015-PITCH (METRIC) 5.21.016-PITCH (INCH)



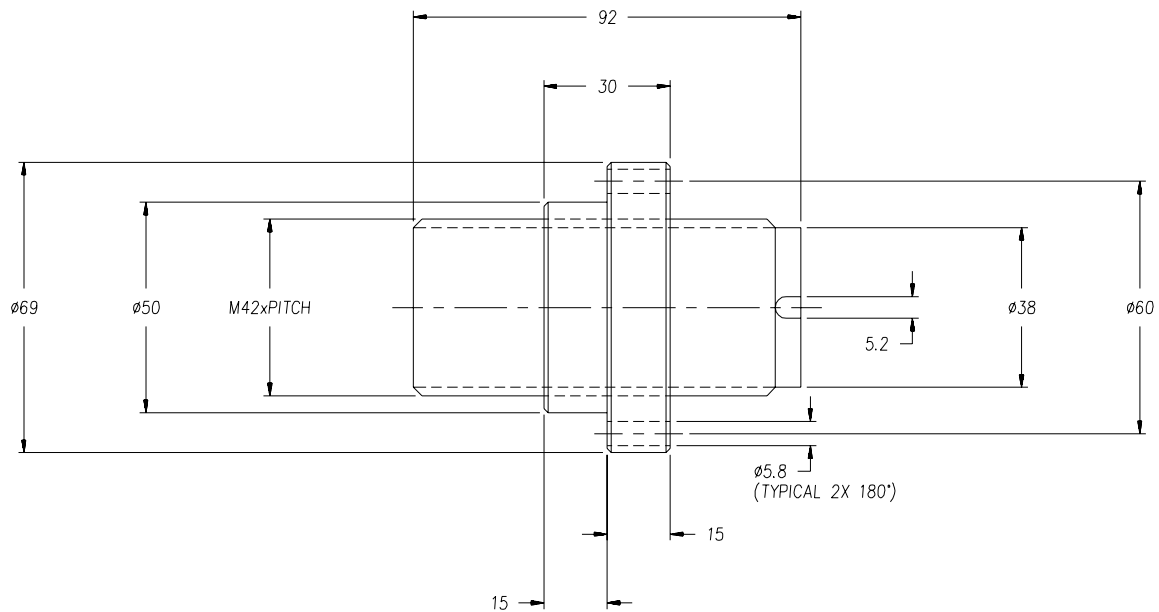
ITEM	QTY.	DESCRIPTION	PITCH	L/R	PART NUMBER
1	1	LEADSCREW 30/60 MM PITCH	.7	RH	5.21.015-0.7
2	1	LEADSCREW 30/60 MM PITCH	.75	RH	5.21.015-0.75
3	1	LEADSCREW 30/60 MM PITCH	1	RH	5.21.015-1
4	1	LEADSCREW 30/60 MM PITCH	1.25	RH	5.21.015-1.25
5	1	LEADSCREW 30/60 MM PITCH	1.5	RH	5.21.015-1.5
6	1	LEADSCREW 30/60 INCH PITCH	8	RH	5.21.016-8G
7	1	LEADSCREW 30/60 INCH PITCH	10	RH	5.21.016-10G
8	1	LEADSCREW 30/60 INCH PITCH	11.5	RH	5.21.016-11.5G
9	1	LEADSCREW 30/60 INCH PITCH	12	RH	5.21.016-12G
10	1	LEADSCREW 30/60 INCH PITCH	13	RH	5.21.016-13G
11	1	LEADSCREW 30/60 INCH PITCH	14	RH	5.21.016-14G
12	1	LEADSCREW 30/60 INCH PITCH	14	LH	5.21.016-14L
13	1	LEADSCREW 30/60 INCH PITCH	15	RH	5.21.016-15G
14	1	LEADSCREW 30/60 INCH PITCH	16	RH	5.21.016-16G
15	1	LEADSCREW 30/60 INCH PITCH	17	RH	5.21.016-17G
16	1	LEADSCREW 30/60 INCH PITCH	18	RH	5.21.016-18G
17	1	LEADSCREW 30/60 INCH PITCH	20	RH	5.21.016-20G
18	1	LEADSCREW 30/60 INCH PITCH	24	RH	5.21.016-24G
19	1	LEADSCREW 30/60 INCH PITCH	27	RH	5.21.016-27G
20	1	LEADSCREW 30/60 INCH PITCH	28	RH	5.21.016-28G
21	1	LEADSCREW 30/60 INCH PITCH	28	LH	5.21.016-28GL
22	1	LEADSCREW 30/60 INCH PITCH	32	RH	5.21.016-32G
23	1	LEADSCREW 30/60 INCH PITCH	36	RH	5.21.016-36G

OTHER RIGHT HAND AND LEFT HAND SIZES AVAILABLE UPON REQUEST

SECTION 11: APPENDIX

6. THREADING UNIT 35/120 AND 45/120 LEAD SCREW

5.21.019-PITCH (METRIC) 5.21.020-PITCH (INCH)



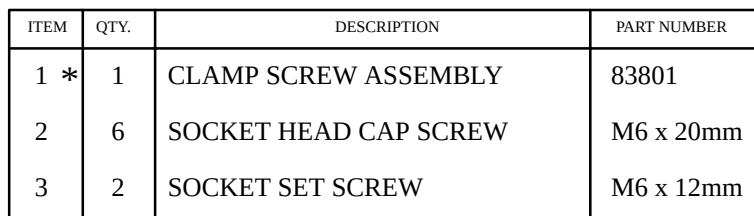
ITEM	QTY.	DESCRIPTION	PITCH	L/R	PART NUMBER
1	1	LEADSCREW 35/120 MM PITCH	.75	RH	5.21.019-0.75
2	1	LEADSCREW 35/120 MM PITCH	1.75	RH	5.21.019-1.75
3	1	LEADSCREW 35/120 MM PITCH	2	RH	5.21.019-2
4	1	LEADSCREW 35/120 MM PITCH	2.5	RH	5.21.019-2.5
5	1	LEADSCREW 35/120 MM PITCH	3	RH	5.21.019-3
6	1	LEADSCREW 35/120 INCH PITCH	8	RH	5.21.020-8G
7	1	LEADSCREW 35/120 INCH PITCH	10	RH	5.21.020-10G
8	1	LEADSCREW 35/120 INCH PITCH	11	RH	5.21.020-11G
9	1	LEADSCREW 35/120 INCH PITCH	12	RH	5.21.020-12G
10	1	LEADSCREW 35/120 INCH PITCH	14	RH	5.21.020-14G
11	1	LEADSCREW 35/120 INCH PITCH	18	RH	5.21.020-18G
12	1	LEADSCREW 35/120 INCH PITCH	20	RH	5.21.020-20G
13	1	LEADSCREW 35/120 INCH PITCH	24	RH	5.21.020-24G
14	1	LEADSCREW 35/120 INCH PITCH	27	RH	5.21.020-27G
15	1	LEADSCREW 35/120 INCH PITCH	32	RH	5.21.020-32G

OTHER RIGHT HAND AND LEFT HAND SIZES AVAILABLE UPON REQUEST

7. PCM ADAPTER - VE 30/60 QC to EIE 36/100 0.060.1106

THIS ADAPTER ALLOWS A RECESSING EIE-36/100 UNIT TO
ACCEPT VE-30/60 AND 35/60 QUICK CHANGE TOOLHEADS.

THE RECESSING HEAD IS REMOVED AND THE ADAPTER IS MOUNTED TO THE FLANGE SPINDLE, LEAVING THE DRAWBAR IN THE UNIT.



* PARTS INCLUDED IN QUILL ASSEMBLY, SHOWN FOR REPLACEMENT REFERENCE ONLY