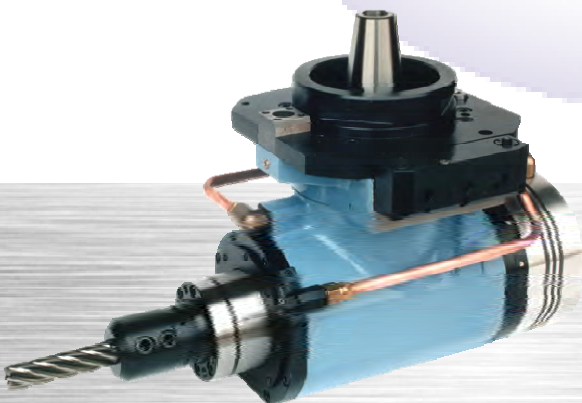
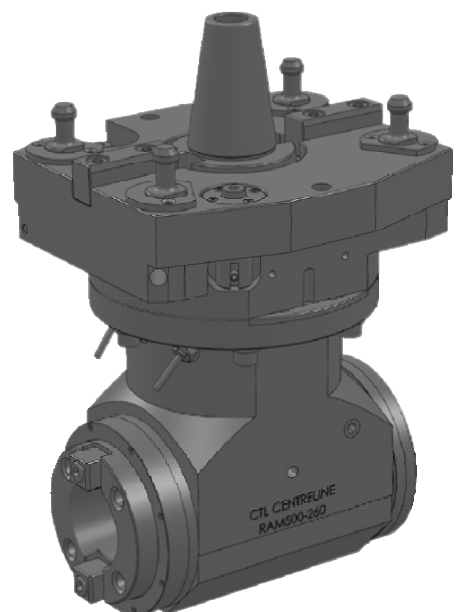
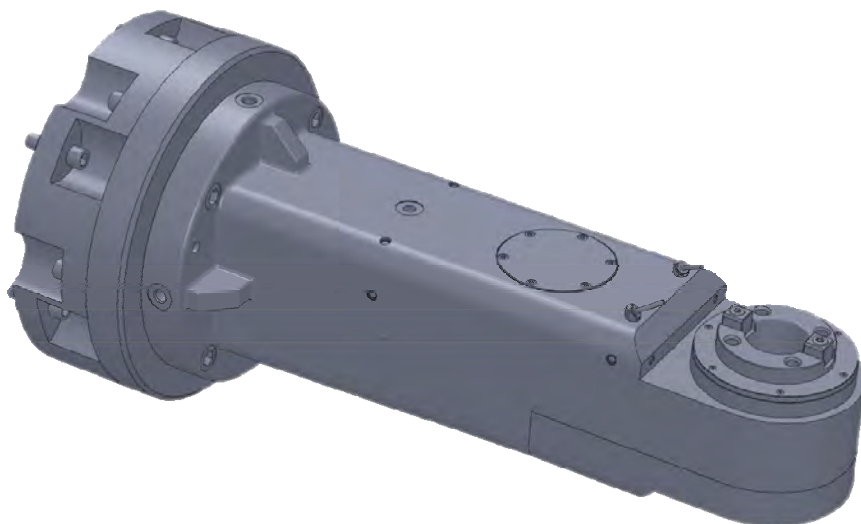
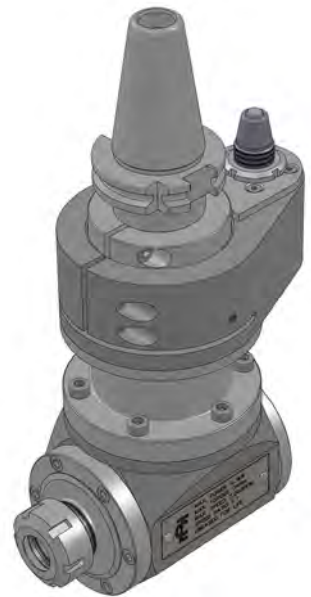
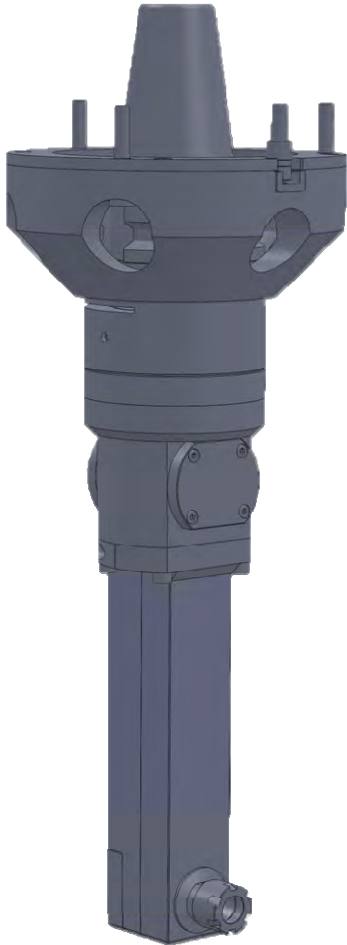
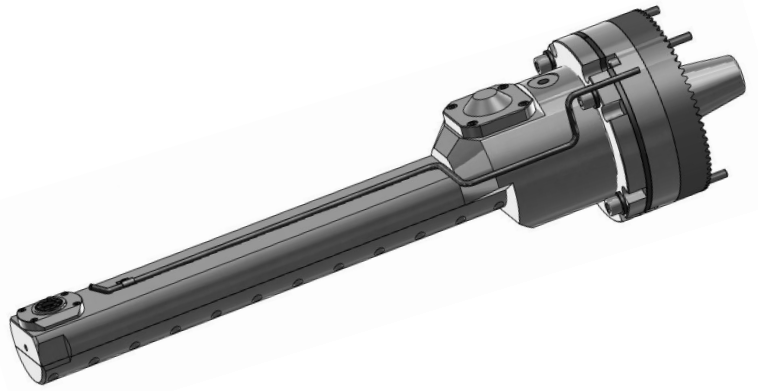
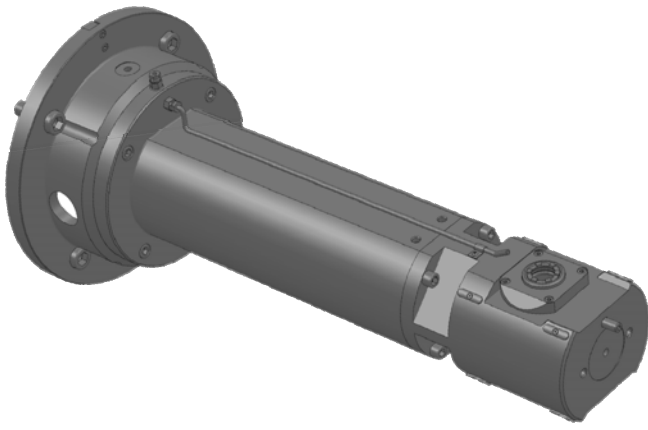




**MACHINING
CENTRE
DRIVEN
TOOLING**





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Welcome to CTL Centreline

CTL Centreline, part of the Coventry Engineering Group of companies, was established over 30 years ago and is now a market leader in the design and manufacture of high quality Standard and Bespoke Driven Tooling solutions for all sectors of industry both in the UK and across the world.

Our extensive product portfolio includes Standard 90 degree, Fixed Angle and Universal Angle Heads, Multi Spindle Drilling and Tapping Heads and Spindle Speed Increaseers. One of the biggest strengths of the team at CTL Centreline is our ability to work closely with our customers to supply the correct solution to sometimes very challenging machining problems highlighted in modern component design. This means that sometimes a 'catalogue' solution is not the correct solution. It is our aim to give the best possible solution.

Our manufacturing facility in Coventry is very well equipped with a 3D design suite and a state of the art CNC machine shop working to the exacting standards required by our customers.

CTL centreline offers a full service and repair service for all standard and special products. Large stocks of all consumable items such as Bearings, Seals and Gears are held for quick turnaround so a head can be returned to production in just a few days.

For tools being used in a production environment where breakdown time must be kept to a minimum, either spare units are kept in stock as service / exchange or spares are held in a bonded area against specific customers



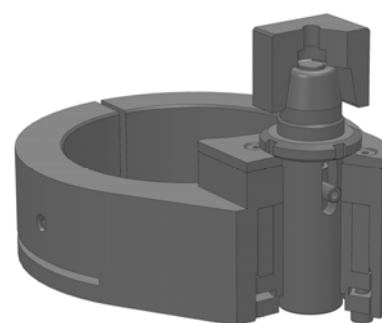
New Generation Angle Heads

The NEW GENERATION of Centreline 90 degree Angle Heads.

NEW Designs

LATEST Innovations

PRECISION components



■ Prismatic Aluminium Bodies, Hard Anodised for long life

■ Integral Drive shaft for increased rigidity

■ Hardened and ground Spiral bevel gears for smoother running, higher speeds, higher torque and longer life

■ Tapered location pin to ensure no radial movement is possible

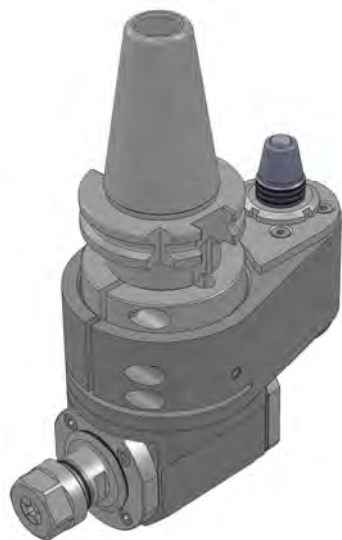
■ Hydraulic locking bush to lock location pin in position for a totally rigid, deflection free interface

■ Spring loaded Interlock mechanism for trouble free toolchange facility

■ Internal coolant facilities with high pressure (70 bar) feed through body or spindle

■ Modular design for faster assembly and easier servicing





RAD120 90° Angle Head

120

Technical Data



ER16 —10mm / M6



Max. 7,000rpm Speed ratio 1 : 1



Max. @ 7,000rpm 0.94kW



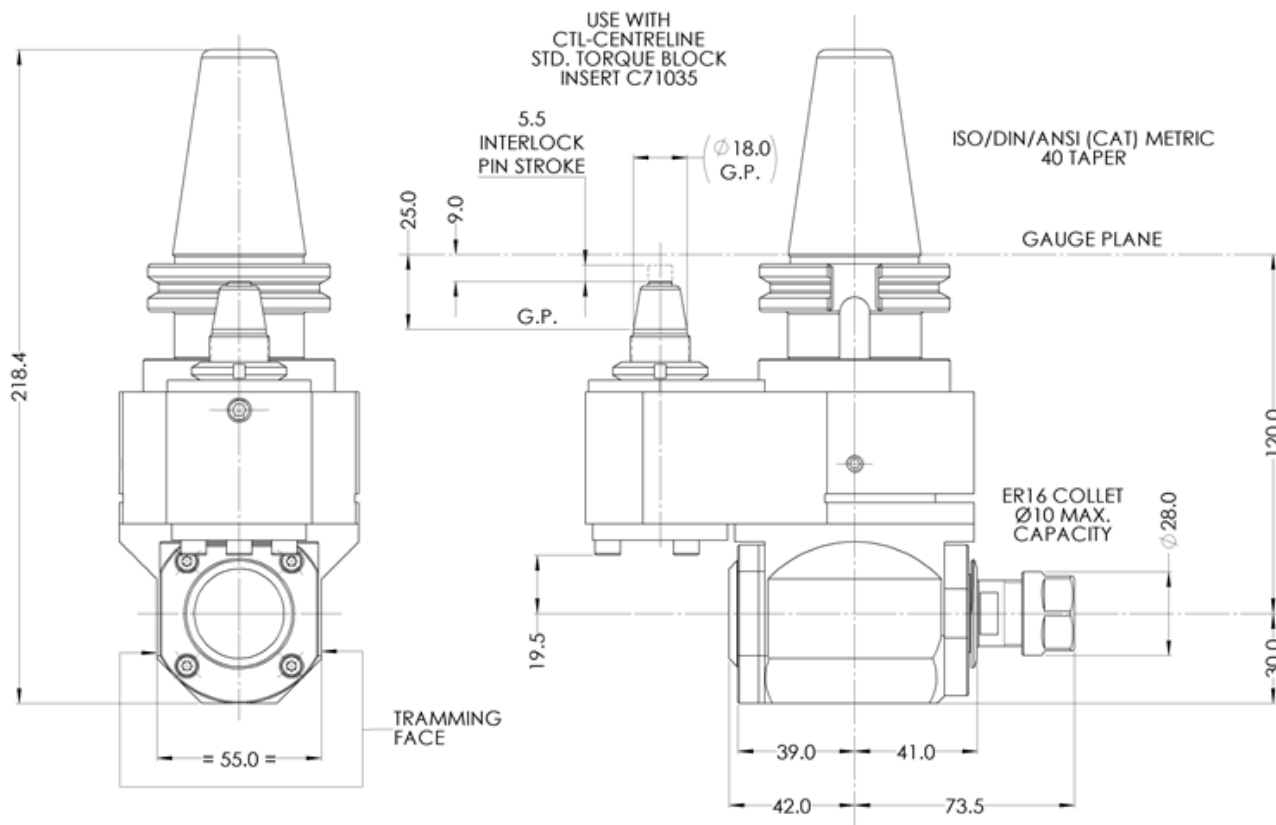
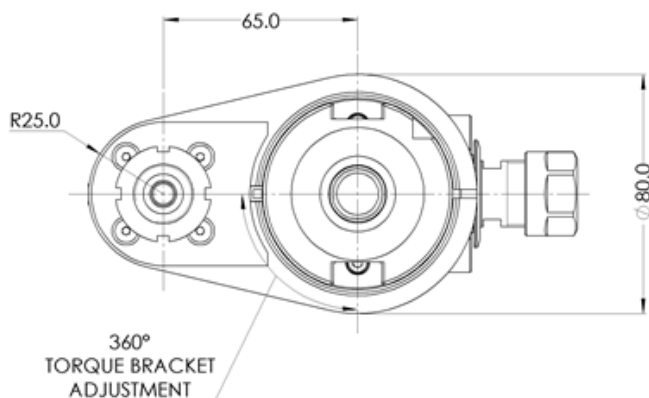
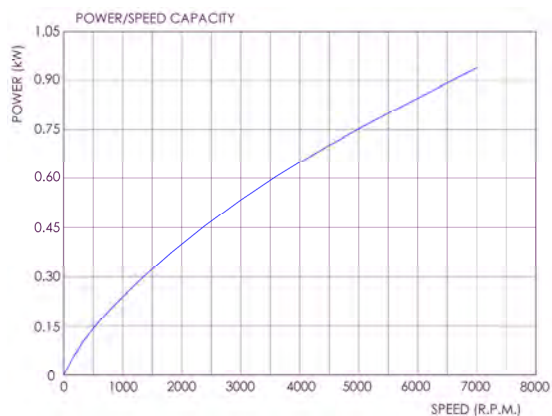
Max. @ 100rpm 3.7Nm



(Without tools) 4.0kg



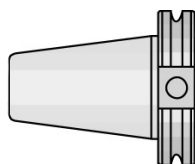
Input Opposite to Output



120 Series 90° Angle Heads

120

- Standard Length. Extended length available on application
- ER16 (10mm Cap.) Collet Chuck Output as standard
- Single or Double Output
- Location Pin Centres — 65mm
- 360° Adjustability
- Tool changes on even the smallest machines
- Maintenance free sealed design. Grease lubricated



Available drive Tapers:

BT40

CAT40 (DIN / ANSI / SK)

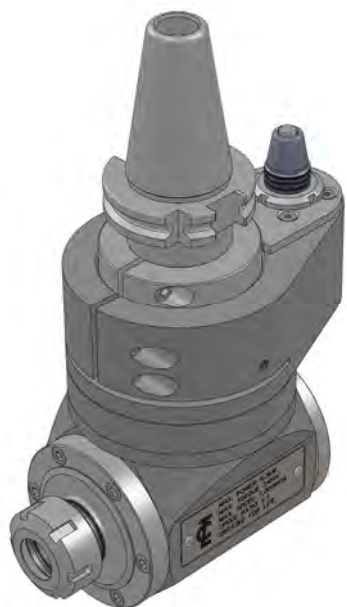
HSK63A

(Other options available on request)

Internal Coolant Options:

Internal Coolant not available with 120 Series heads









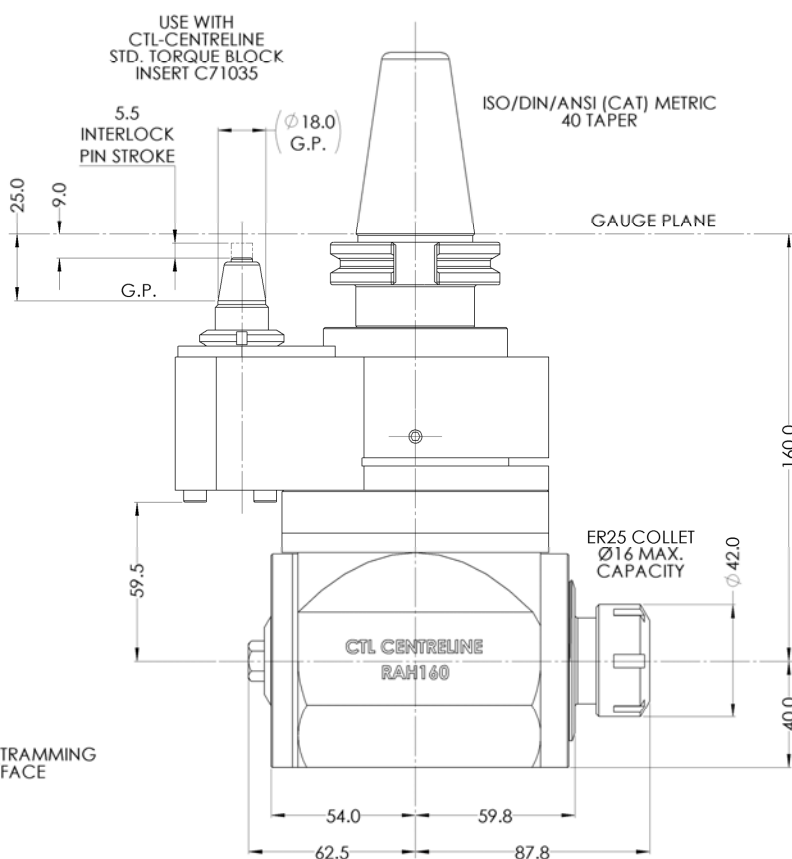
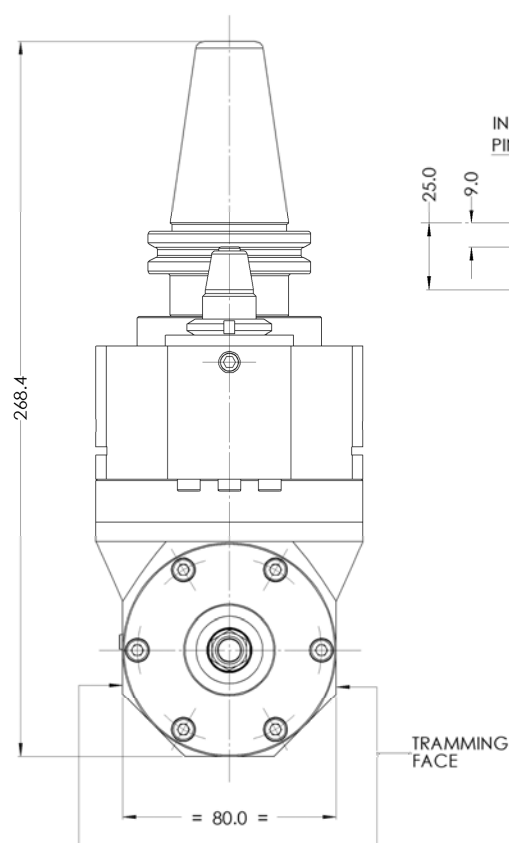
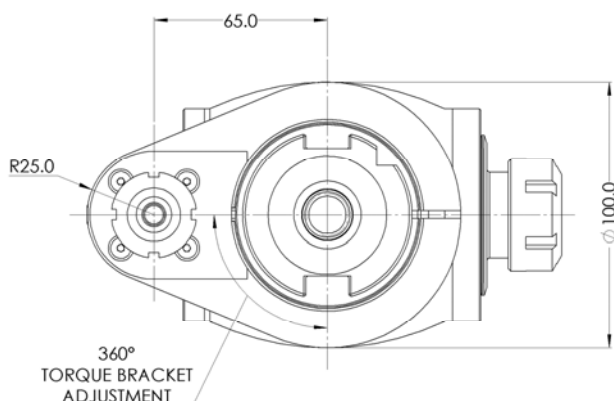


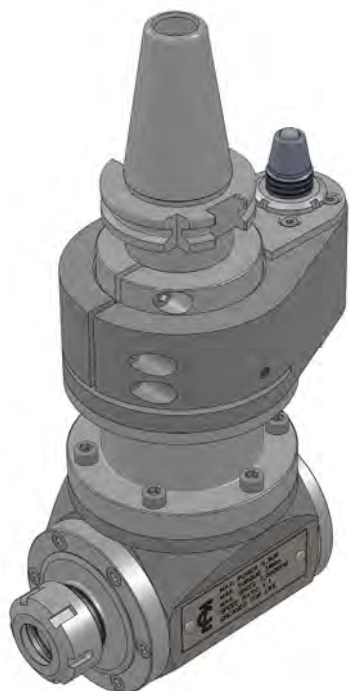
RAD160 90° Angle Head

160

Technical Data

	ER25 —16mm / M12	
	Max. 7,000rpm Speed ratio 1 : 1	
	Max. @ 7,000rpm	9.3kW
	Max. @ 100rpm	34Nm
	(Without tools)	7.0kg
	Input Opposite to Output	





RAD160 - 200 Extended 90° Angle Head

160

Technical Data



ER25 —16mm / M12



Max. 7,000rpm Speed ratio 1 : 1



Max. @ 7,000rpm 9.3kW



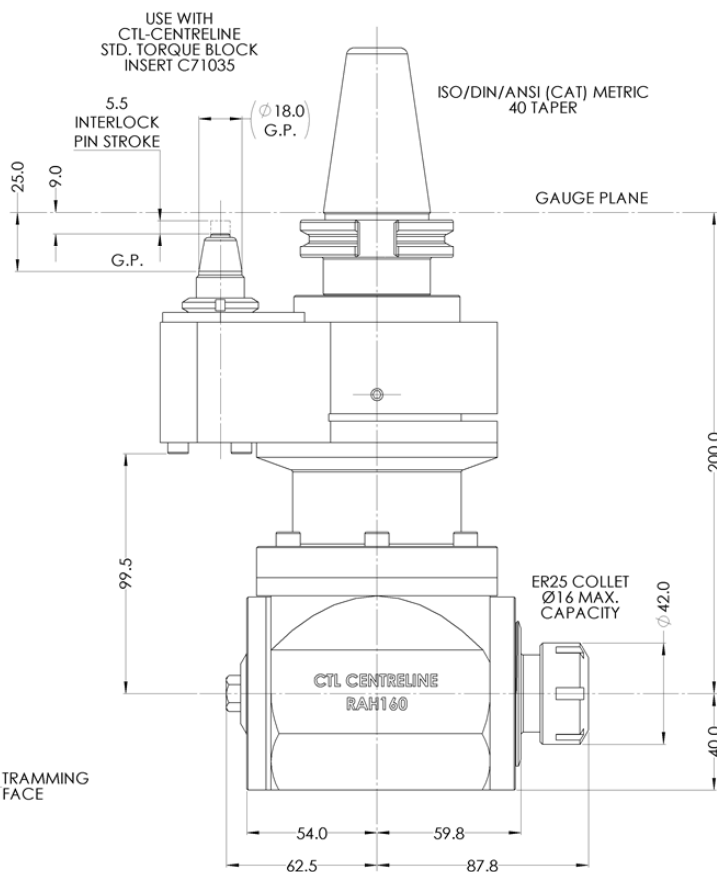
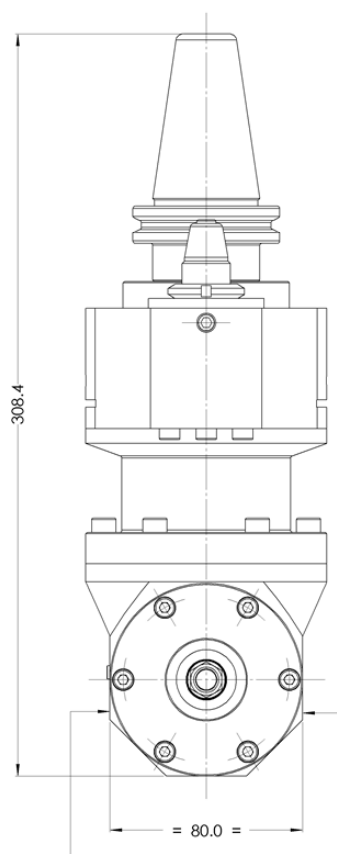
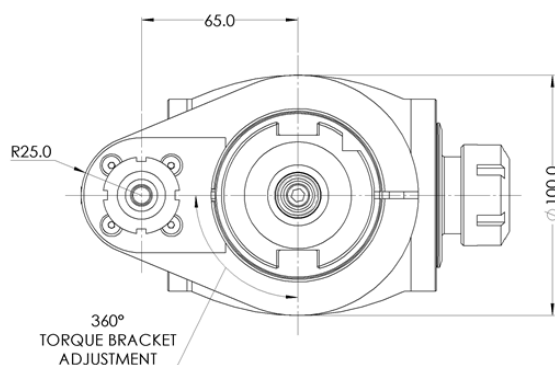
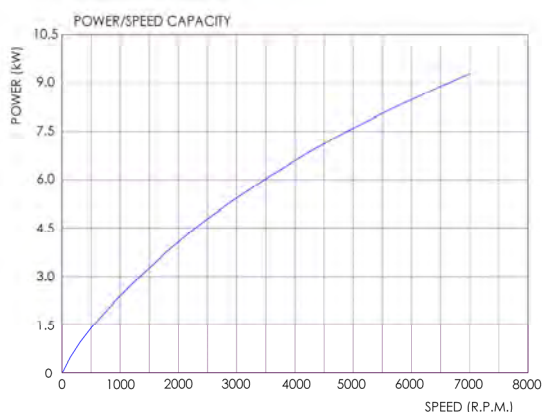
Max. @ 100rpm 34Nm

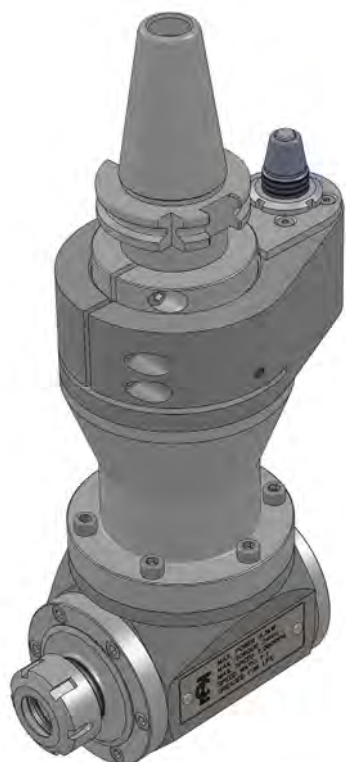


(Without tools) 9.4kg



Input Opposite to Output





RAD160 - 240 Extended 90° Angle Head

160

Technical Data



ER25 —16mm / M12



Max. 7,000rpm Speed ratio 1 : 1



Max. @ 7,000rpm 9.3kW



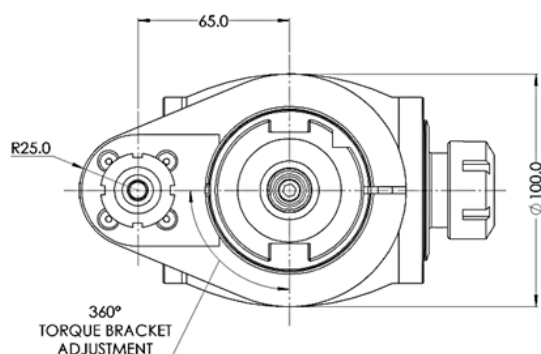
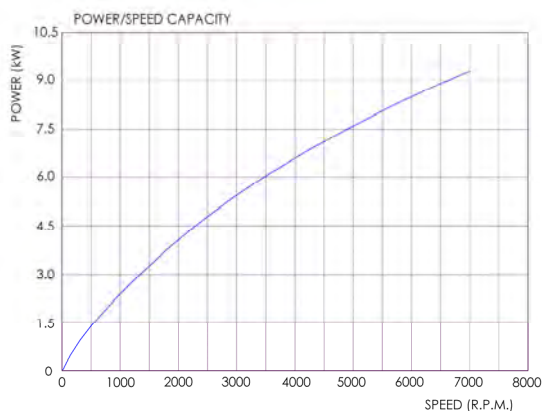
Max. @ 100rpm 34Nm



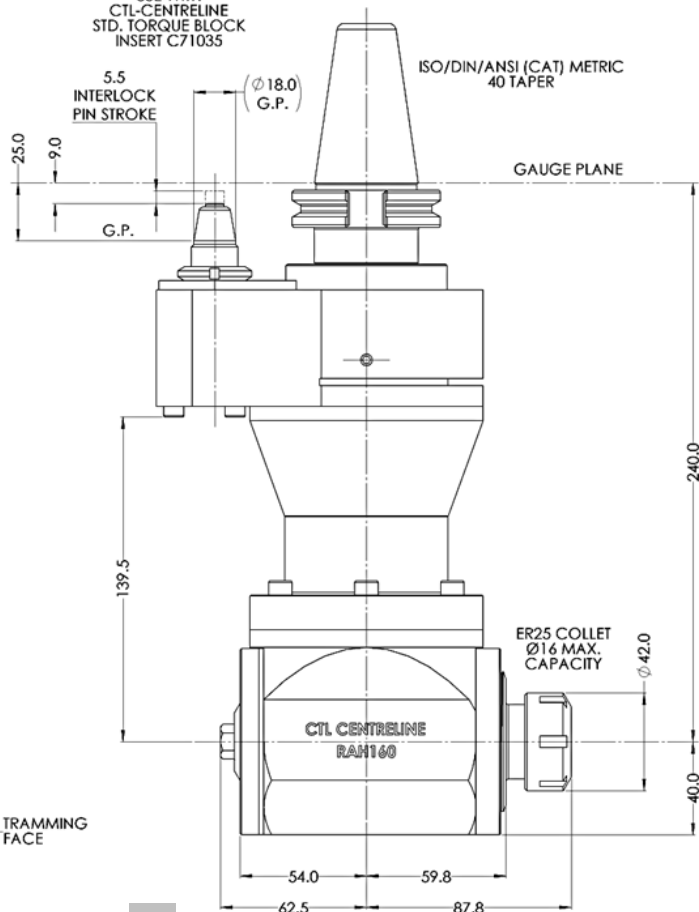
(Without tools) 11.1kg

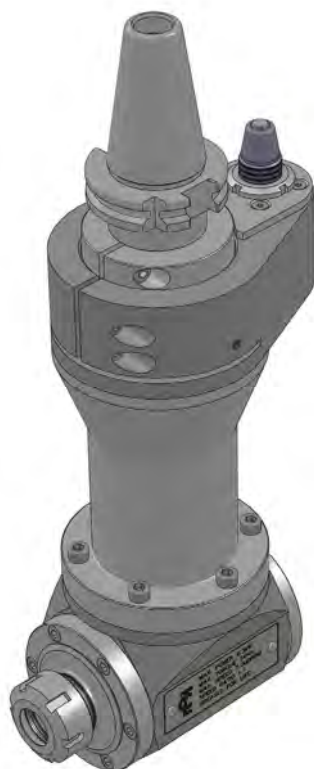


Input Opposite to Output



USE WITH
CTL-CENTRELINE
STD. TORQUE BLOCK
INSERT C71035





RAD160 - 280 Extended 90° Angle Head

160

Technical Data



ER25 —16mm / M12



Max. 7,000rpm Speed ratio 1 : 1



Max. @ 7,000rpm 9.3kW



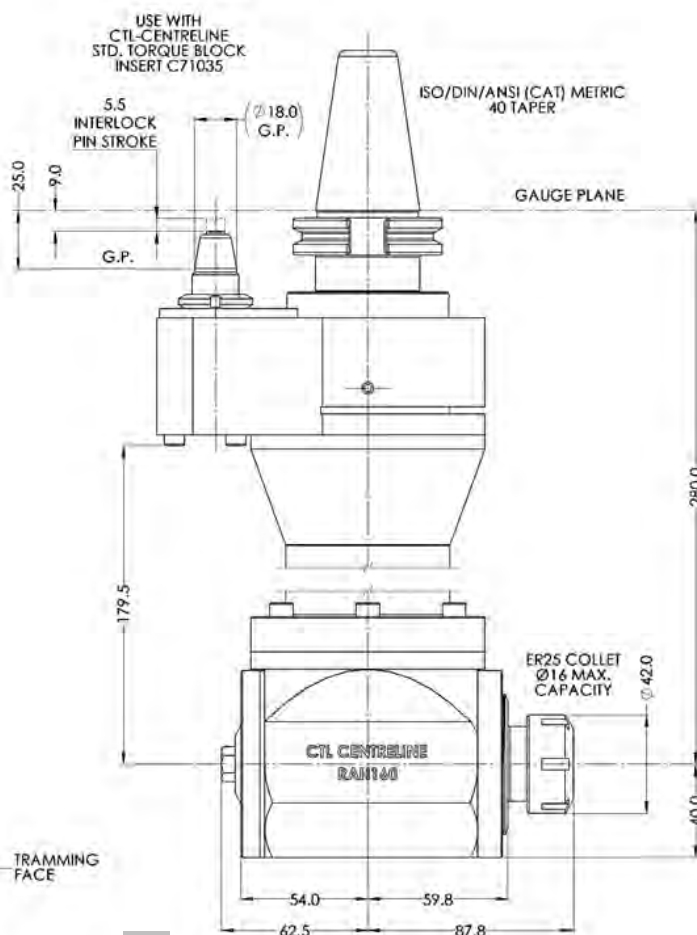
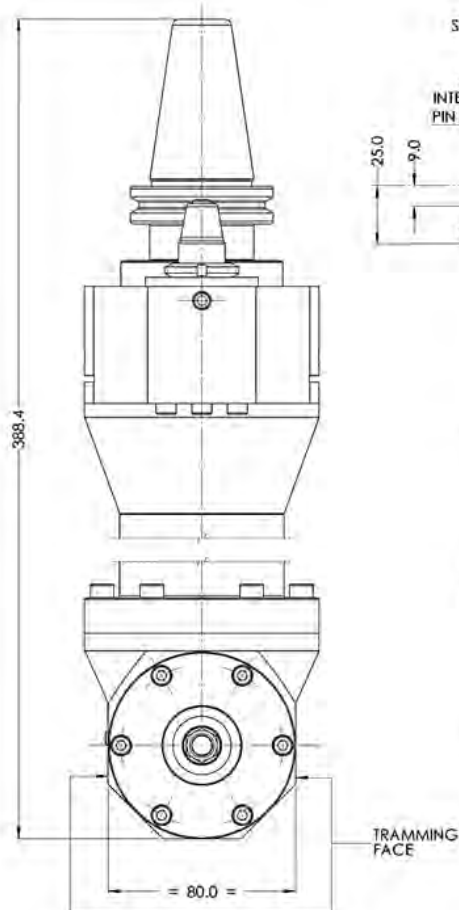
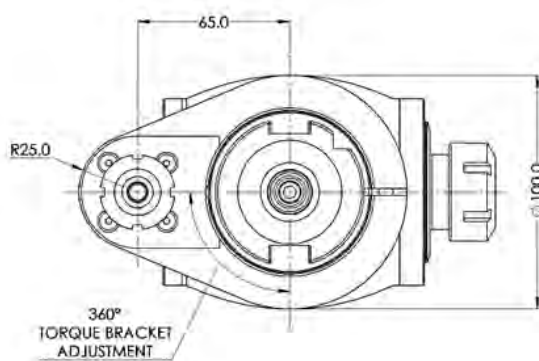
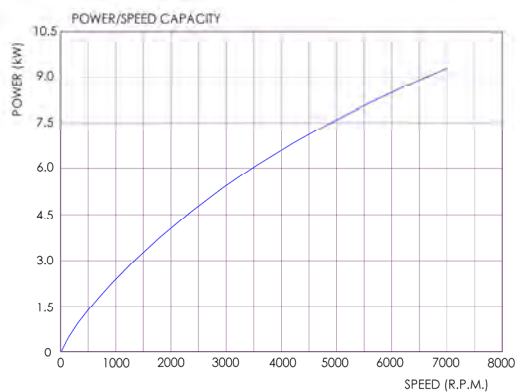
Max. @ 100rpm 34Nm

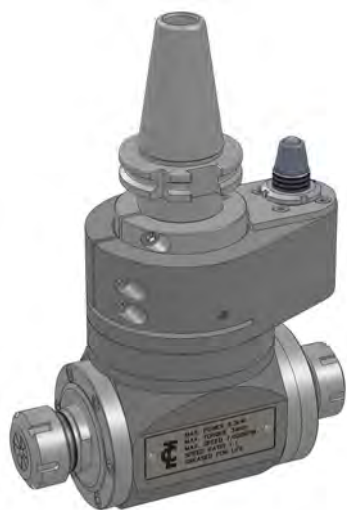


(Without tools) 12.3kg



Input Opposite to Output





RAD160 - DE Double Output 90° Angle Head

160

Technical Data



2 x ER25 —16mm / M12



Max. 7,000rpm Speed ratio 1 : 1



Max. @ 7,000rpm 9.3kW



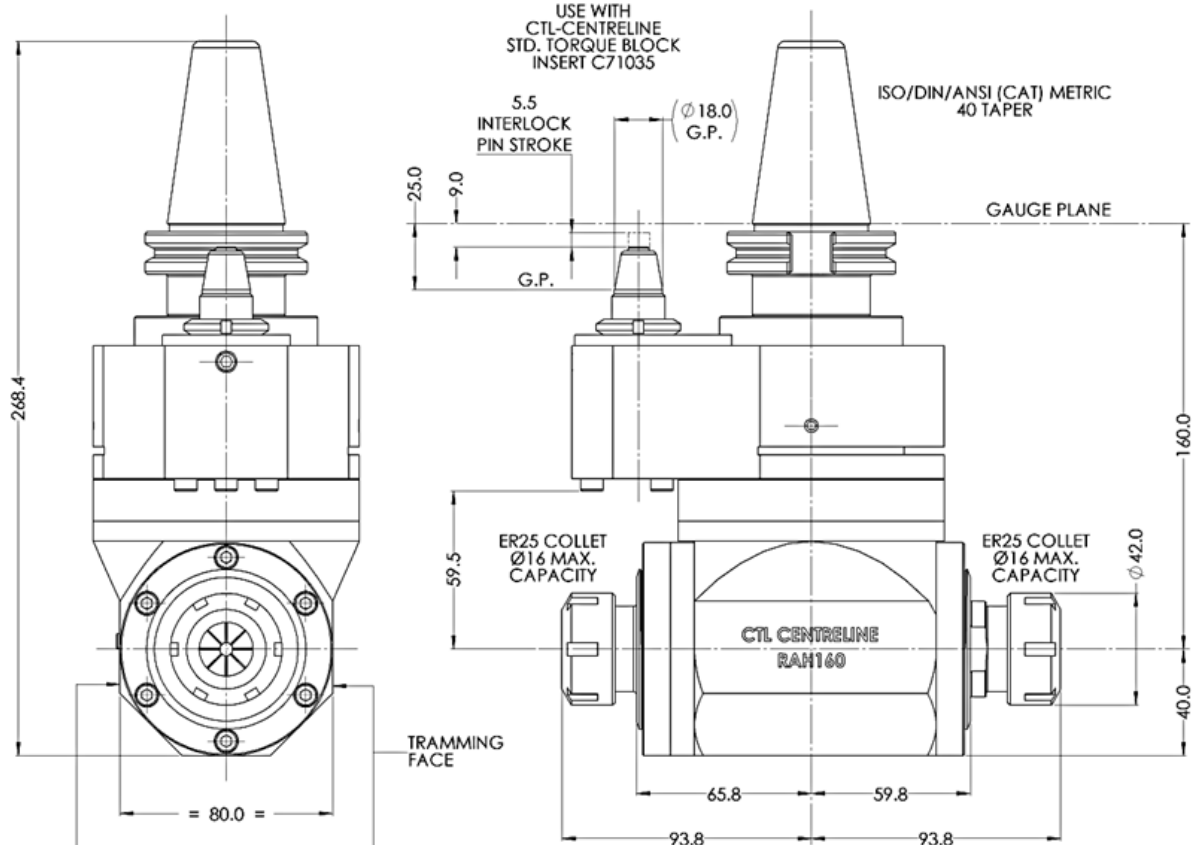
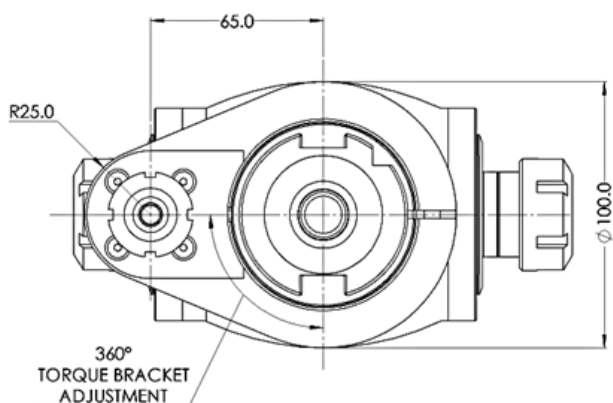
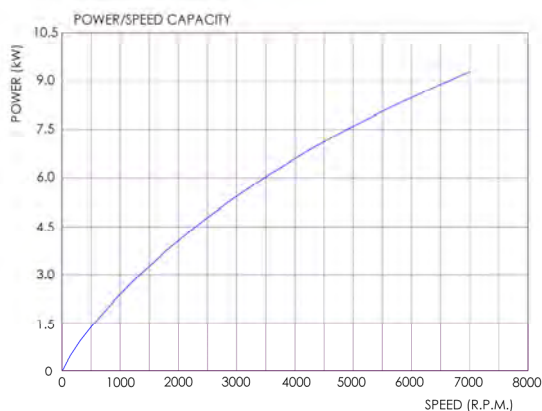
Max. @ 100rpm 34Nm

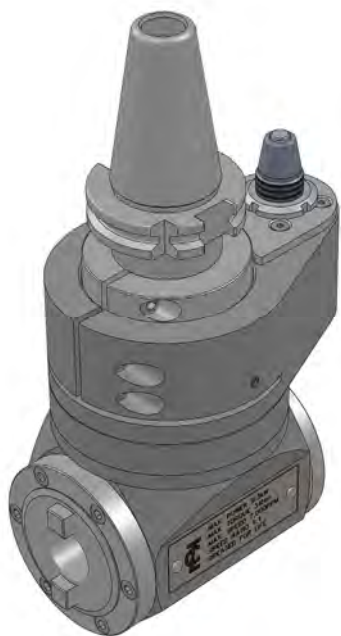


(Without tools) 7.5kg



Input Opposite to Output









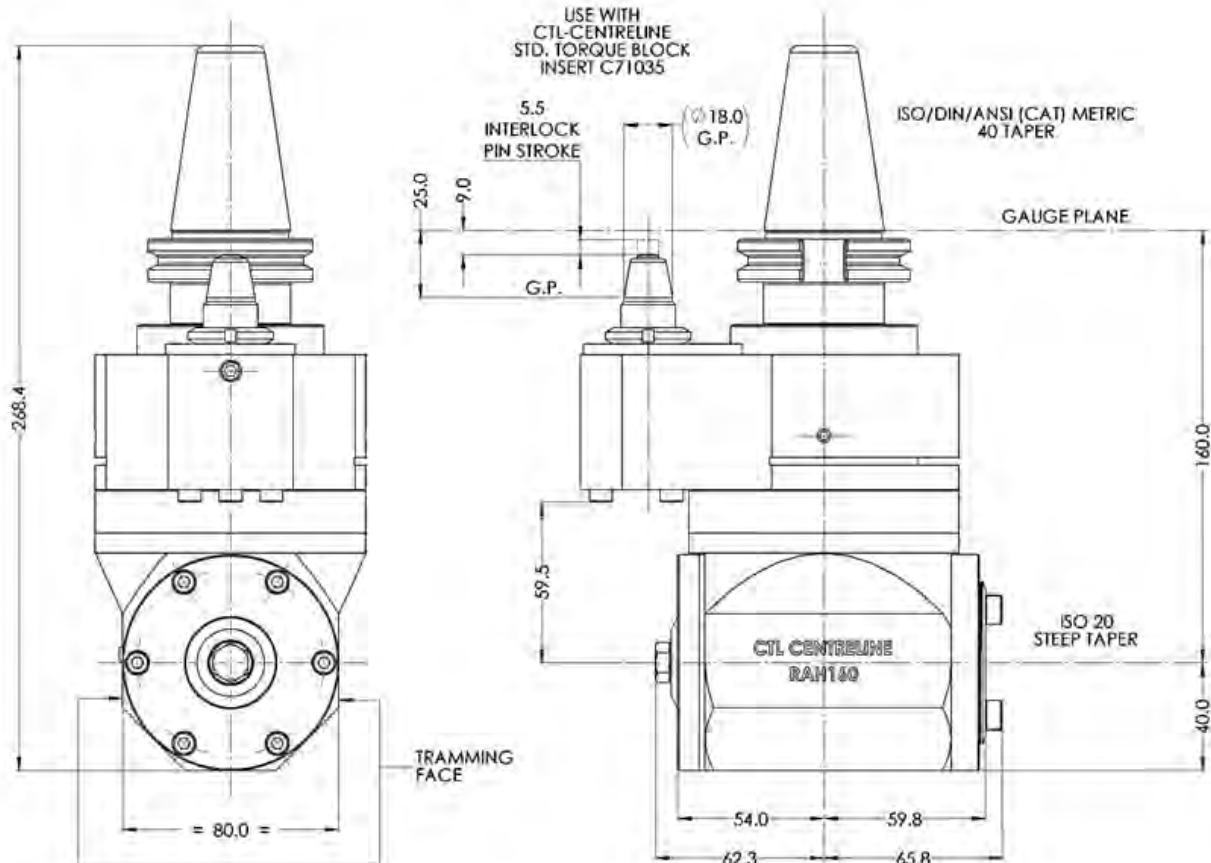
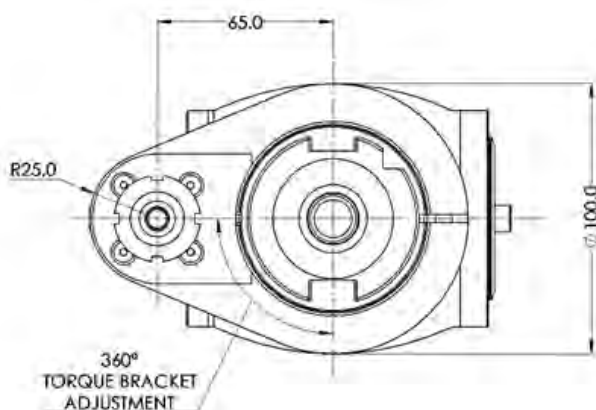
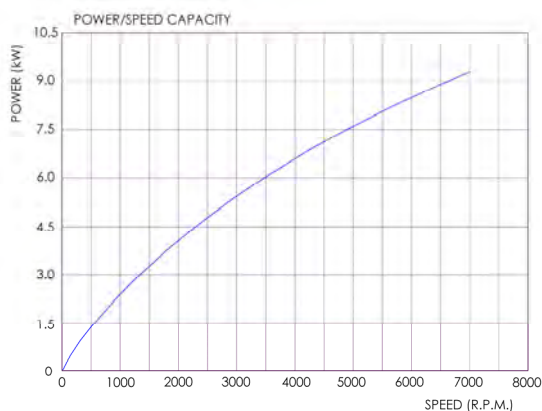


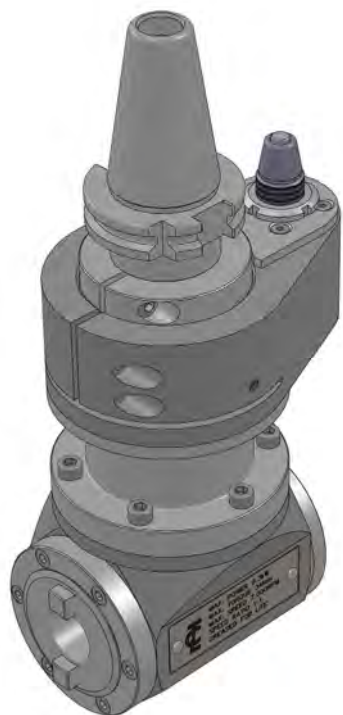
RAM160 90° Angle Head

160

Technical Data

	ISO20 Steep Taper Adaptor	
	Max. 7,000rpm Speed ratio 1 : 1	
	Max. @ 7,000rpm	9.3kW
	Max. @ 100rpm	34Nm
	(Without tools)	6.9kg
	Input Opposite to Output	









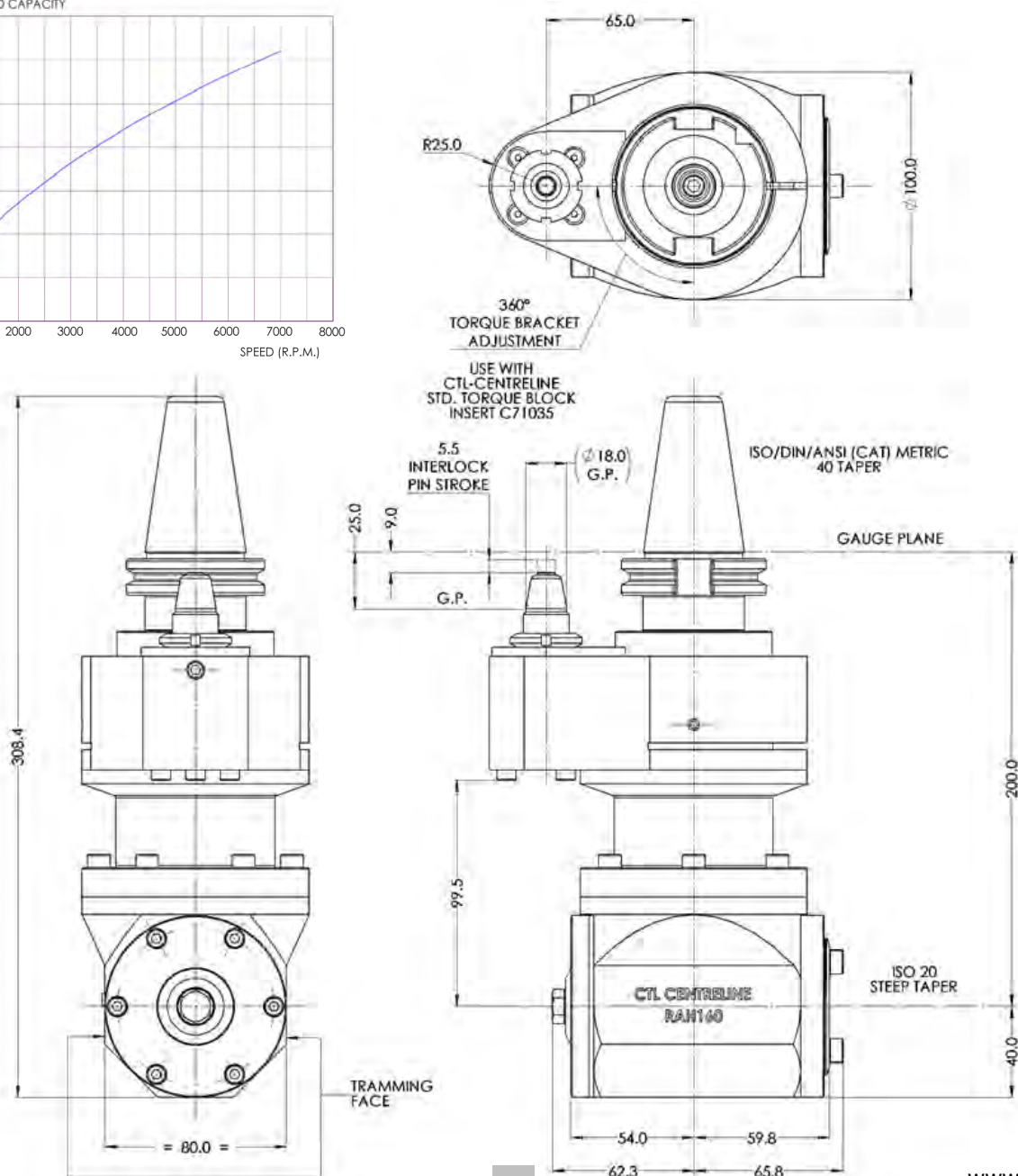
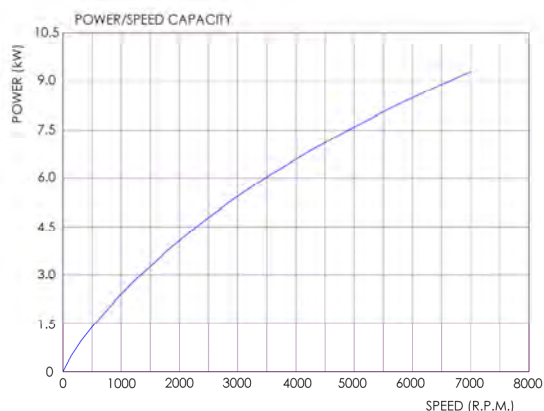


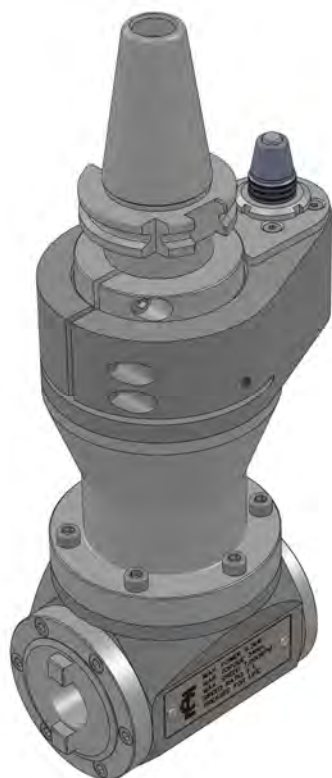
RAM160 - 200 Extended 90° Angle Head

160

Technical Data

	ISO20 Steep Taper Adaptor	
	Max. 7,000rpm Speed ratio 1 : 1	
	Max. @ 7,000rpm	9.3kW
	Max. @ 100rpm	34Nm
	(Without tools)	9.1kg
	Input Opposite to Output	





RAM160 - 240 Extended 90° Angle Head

160

Technical Data



ISO20 Steep Taper Adaptor



Max. 7,000rpm Speed ratio 1 : 1



Max. @ 7,000rpm 9.3kW



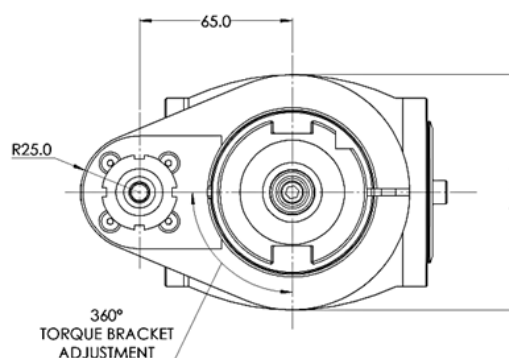
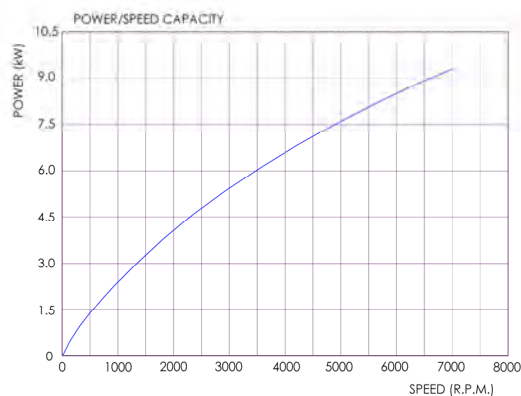
Max. @ 100rpm 34Nm



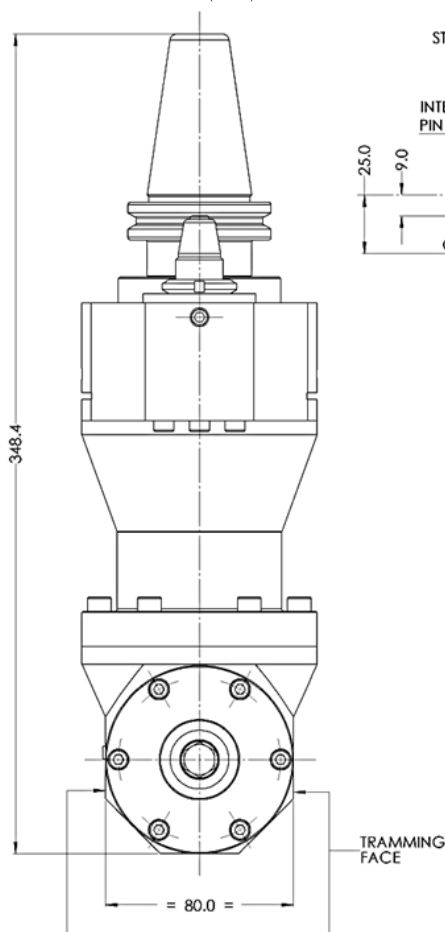
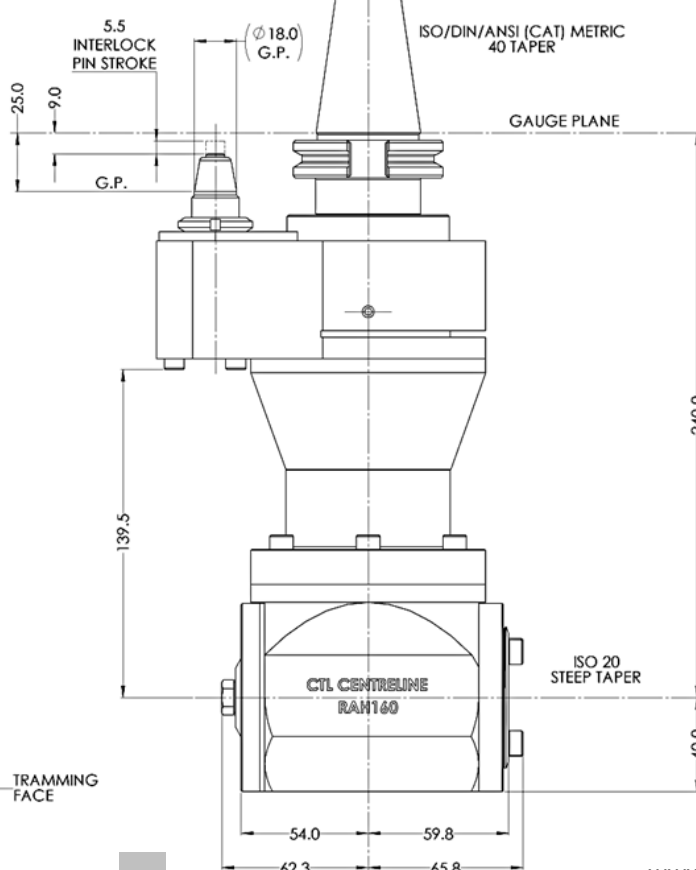
(Without tools) 10.9kg

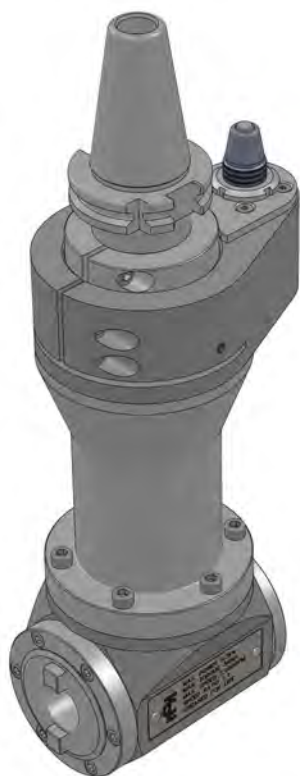


Input Opposite to Output



USE WITH
CTL-CENTRELINE
STD. TORQUE BLOCK
INSERT C71035





RAM160 - 280 Extended 90° Angle Head

160

Technical Data



ISO20 Steep Taper Adaptor



Max. 7,000rpm Speed ratio 1 : 1



Max. @ 7,000rpm 9.3kW



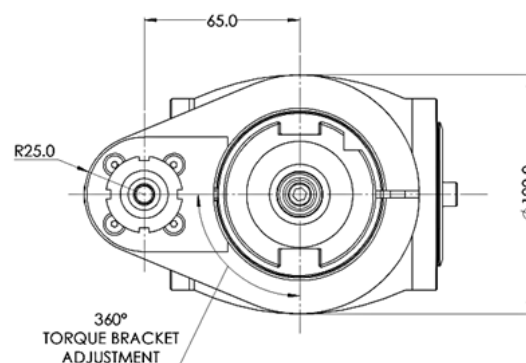
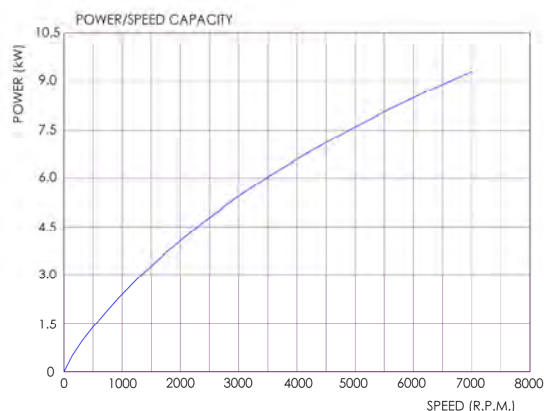
Max. @ 100rpm 34Nm



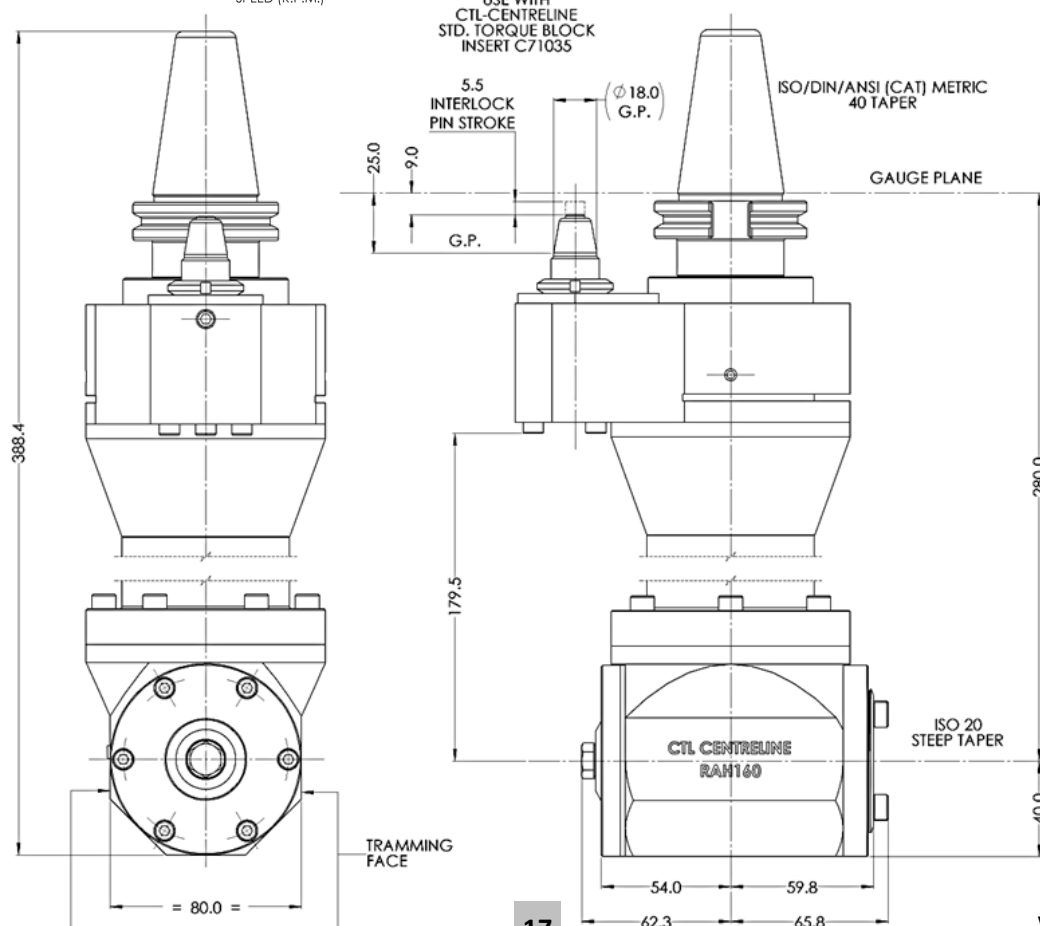
(Without tools) 12.1kg



Input Opposite to Output



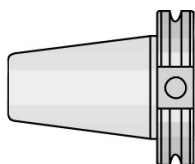
USE WITH
CTL-CENTRELINE
STD. TORQUE BLOCK
INSERT C71035



160 Series 90° Angle Heads

160

- Standard Length or Extended lengths available
- ER25 (16mm Cap.) Collet Chuck or Modular ISO20 Output as standard
- High Pressure Through Coolant option with Outlet via Body or Spindle
- Single or Double Output
- Location Pin Centres — 65mm (40ISO / HSK63), 80mm, 100mm & 110mm (50ISO)
- 360° adjustability
- Special output options available
- Maintenance free sealed design. Grease lubricated



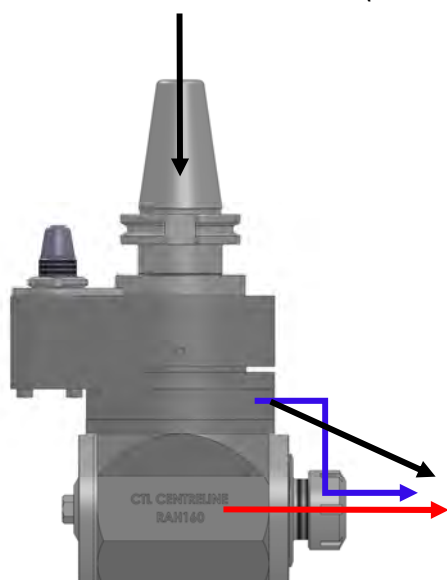
Available drive Tapers:

BT40—BT50

CAT40—CAT50 (DIN / ANSI / SK)

HSK63A, HSK80A, HSK100A

(Other options available on request)



Internal Coolant Options:

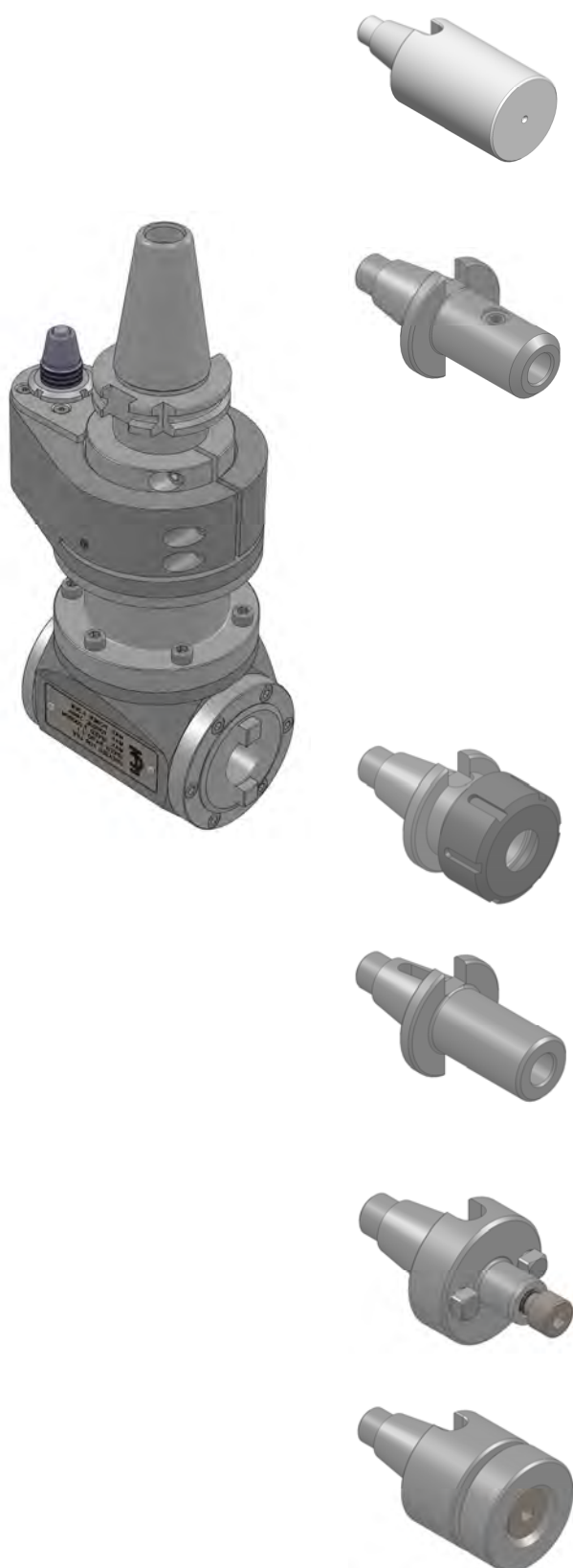
A - In through Shank - Out through Body

B - In through Shank - Out through Spindle / Tool

C - In through Shank - out via Special Through Coolant Locknut

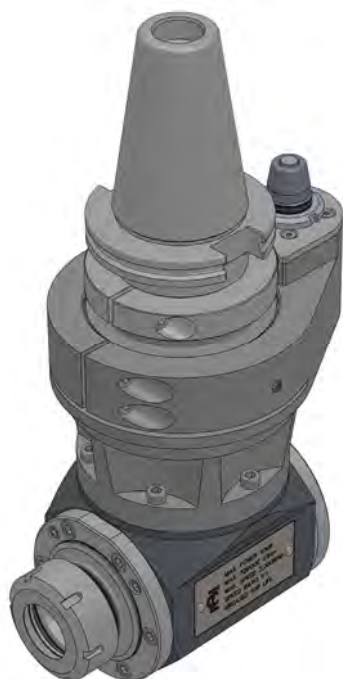
160 Series Modular Tool Holders

160



Type	Size	Gauge Length
Tool Blank		
End Mill Adapter	6mm	40mm
	8mm	42mm
	10mm	44mm
	12mm	49mm
	16mm	52mm
	1/4"	44mm (1.73")
	3/8"	44mm (1.73")
	1/2"	49mm (1.93")
	5/8"	67.5mm (2.66")
Collet Chuck	ER16	30mm
	ER25	38mm
	ER32	41mm
Morse Taper Adapter	M T 1	50mm
	M T 2	64mm
Milling Arbor	16mm	18mm
	16mm	35mm
	22mm	20mm
	1"	57mm (2.24")
Slitting Saw Arbor	1"	28mm (1.10")





RAD225 90° Angle Head

225

Technical Data



ER40 —30mm / M22



Max. 3,000rpm Speed ratio 1 : 1



Max. @ 3,000rpm 10kW



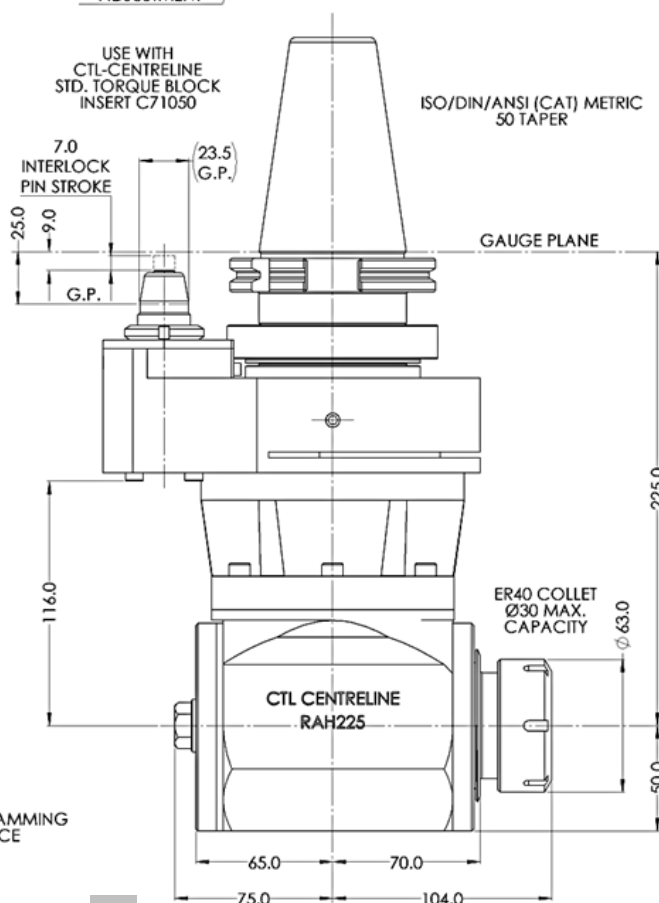
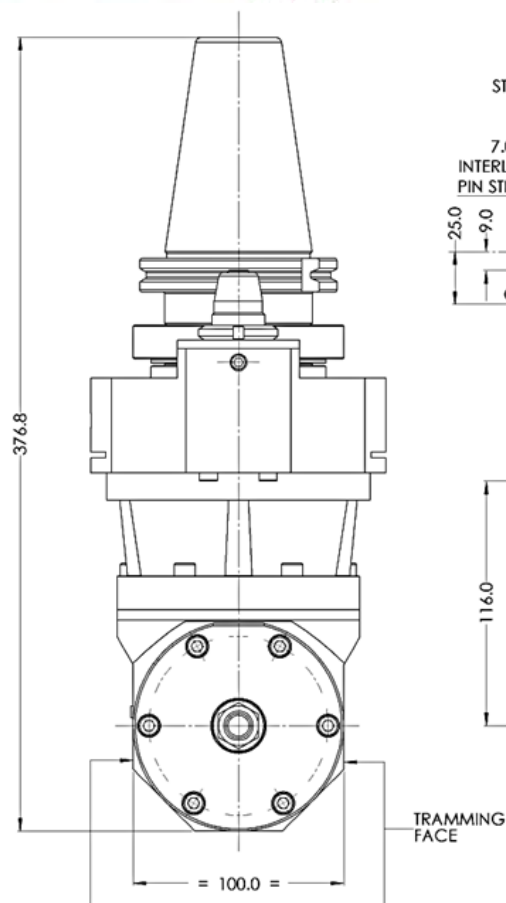
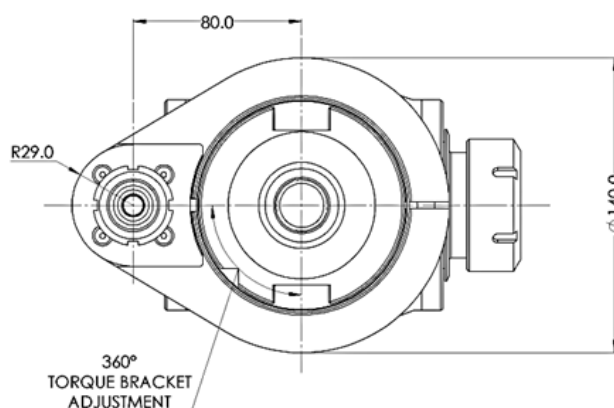
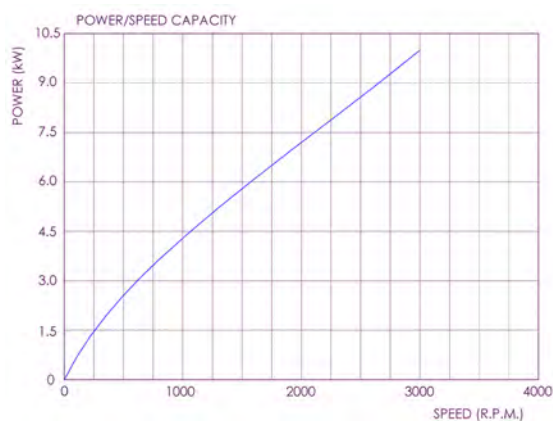
Max. @ 100rpm 63Nm

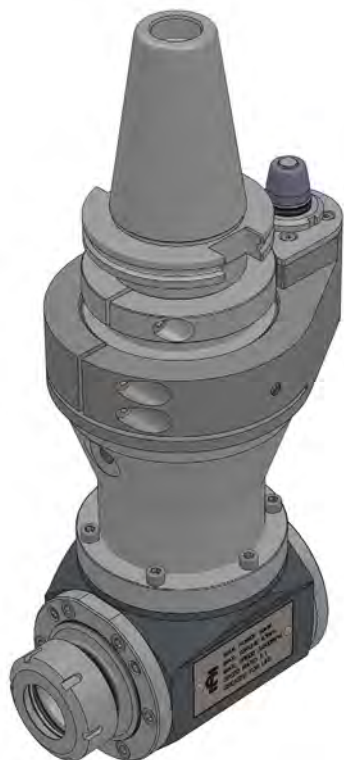


(Without tools) 16.1kg



Input Opposite to Output









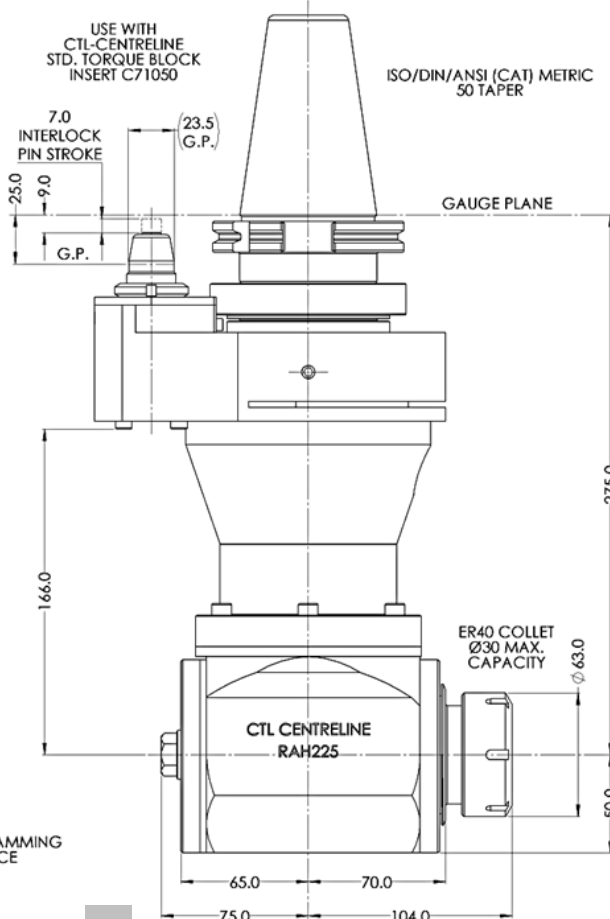
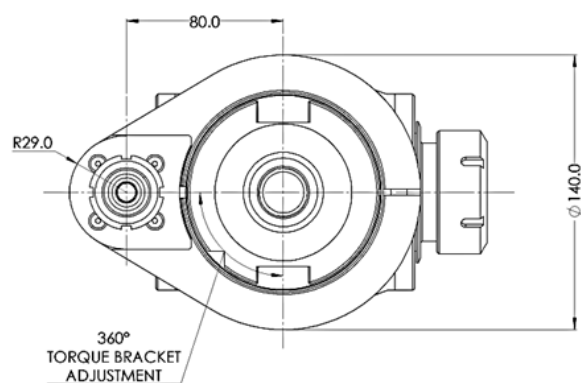
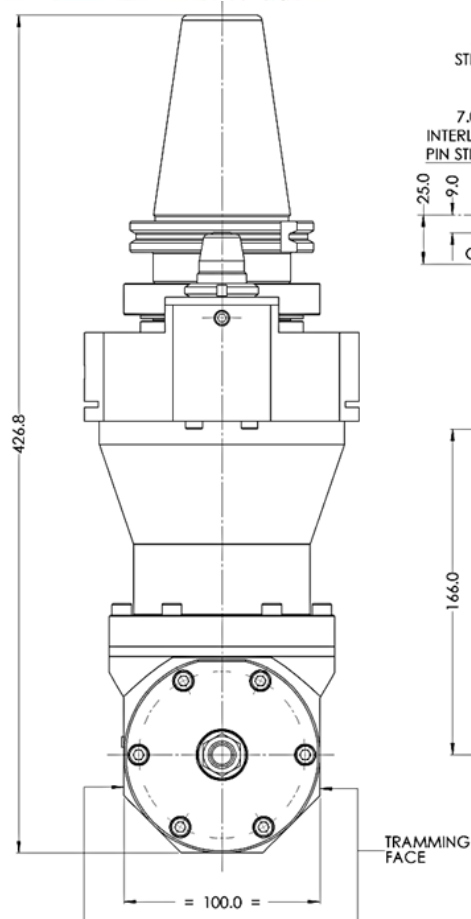


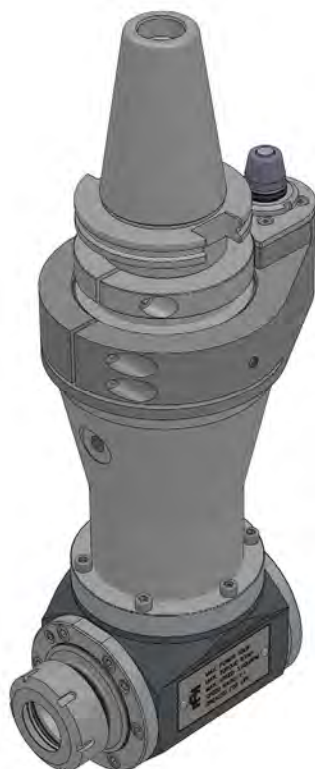
RAD225 - 275 Extended 90° Angle Head

225

Technical Data

	ER40 —30mm / M22	
	Max. 3,000rpm Speed ratio 1 : 1	
	Max. @ 3,000rpm	10kW
	Max. @ 100rpm	63Nm
	(Without tools)	16.1kg
	Input Opposite to Output	









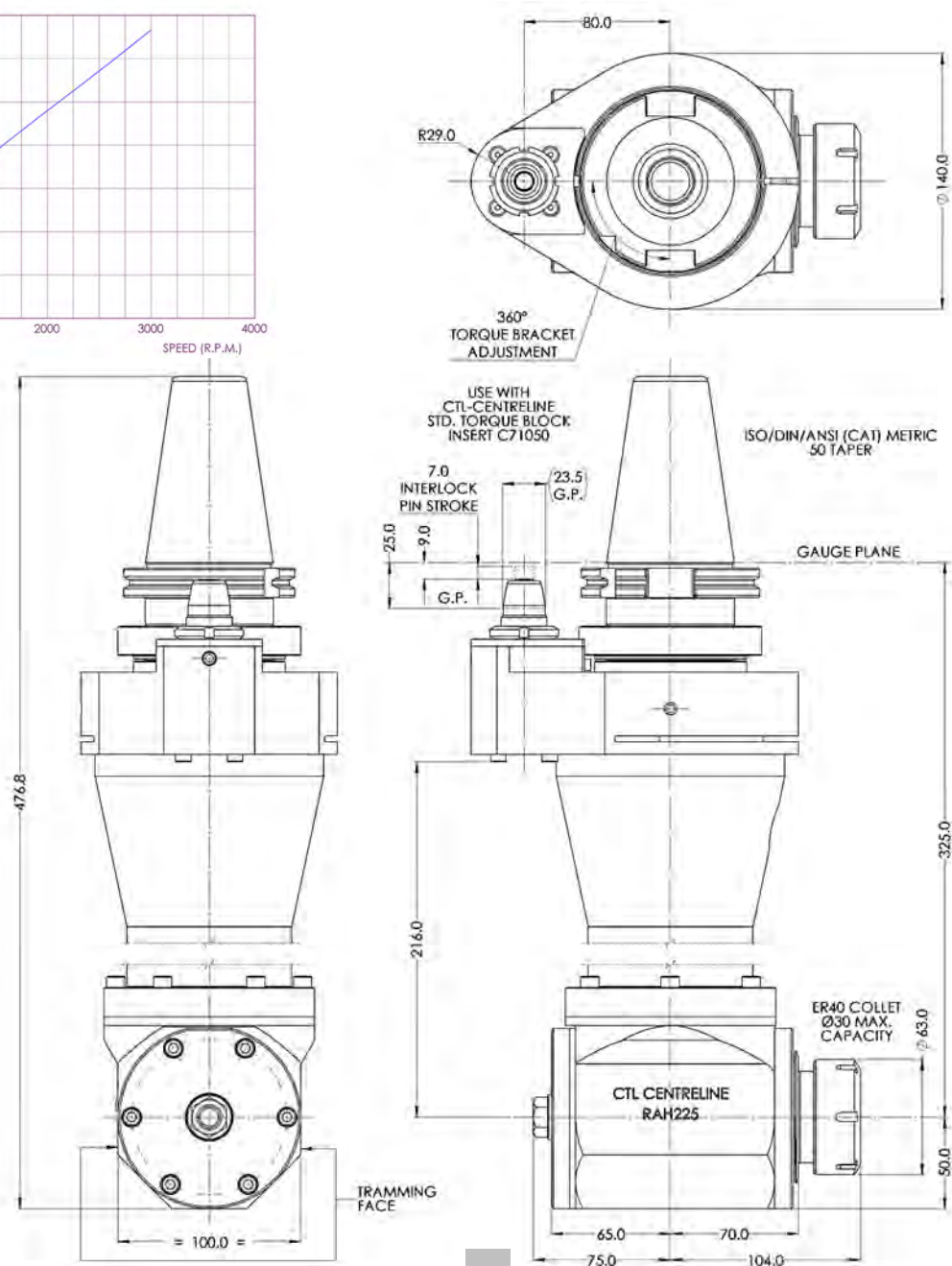
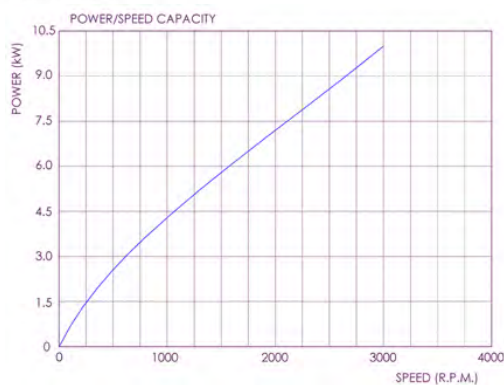


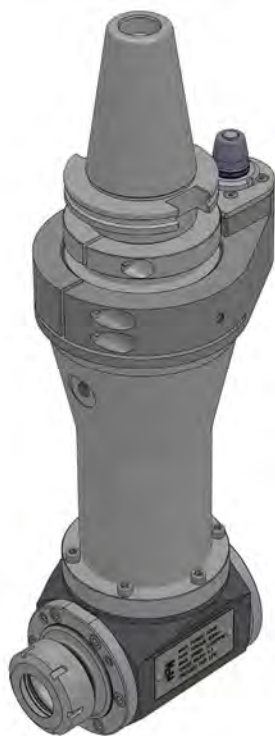
RAD225 - 325 Extended 90° Angle Head

225

Technical Data

	ER40 —30mm / M22	
	Max. 3,000rpm Speed ratio 1 : 1	
	Max. @ 3,000rpm	10kW
	Max. @ 100rpm	63Nm
	(Without tools)	24.0kg
	Input Opposite to Output	





RAD225 - 375 Extended 90° Angle Head

225

Technical Data



ER40 —30mm / M22



Max. 3,000rpm Speed ratio 1 : 1



Max. @ 3,000rpm 10kW



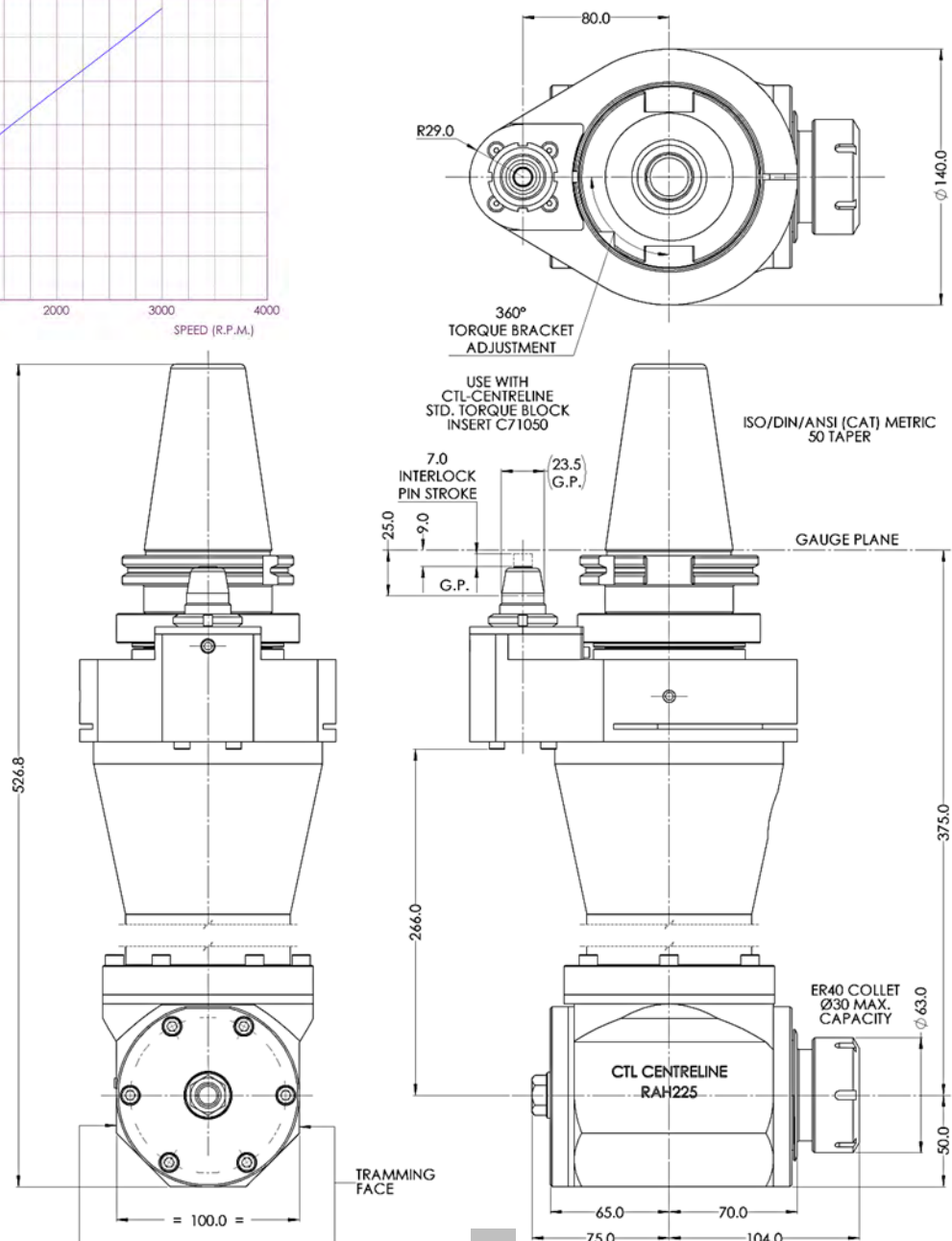
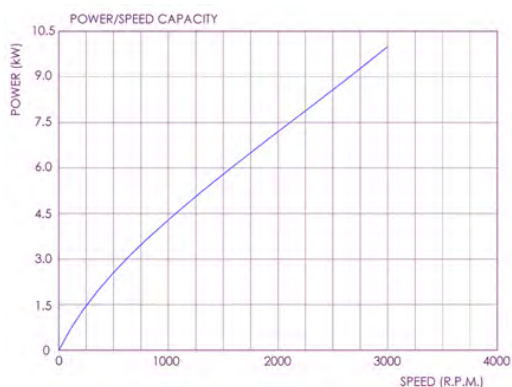
Max. @ 100rpm 63Nm

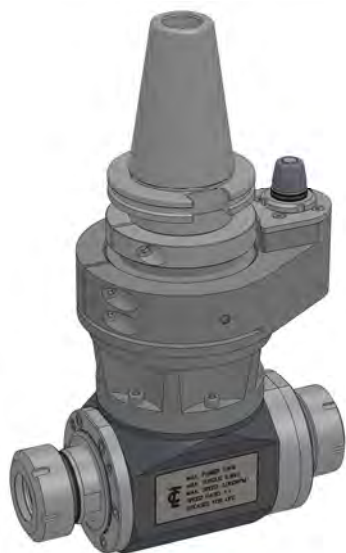


(Without tools) 26.2kg



Input Opposite to Output









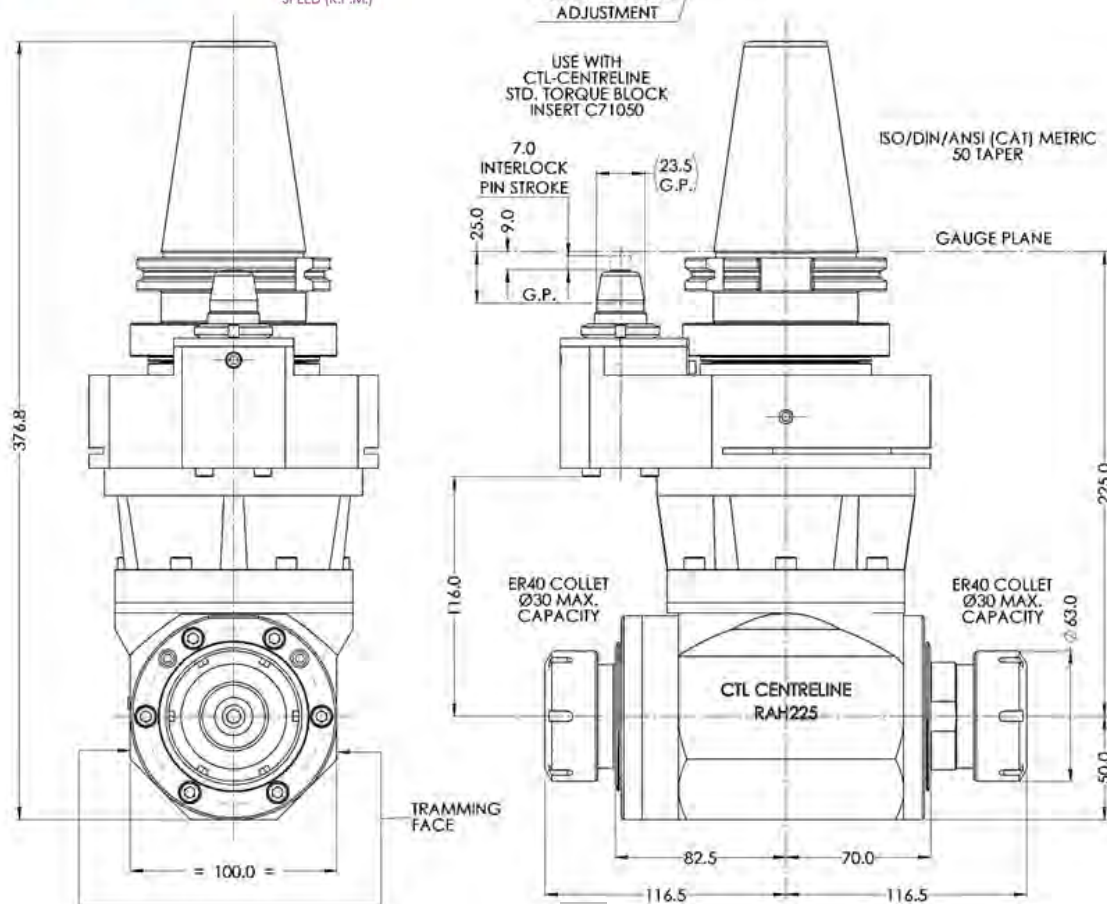
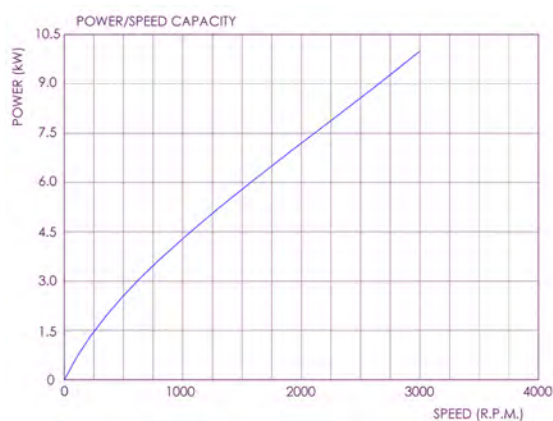


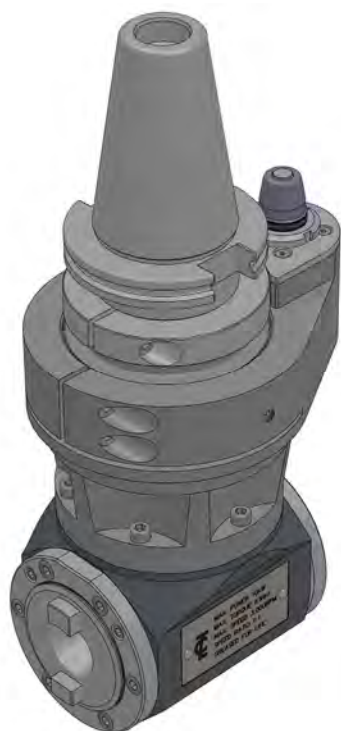
RAD225 Double Output 90° Angle Head

225

Technical Data

	2 x ER40 —30mm / M22	
	Max. 3,000rpm Speed ratio 1 : 1	
	Max. @ 3,000rpm	10kW
	Max. @ 100rpm	63Nm
	(Without tools)	17.3kg
	Input Opposite to Output	





RAM 225 90° Angle Head

225

Technical Data



ISO30 Steep Taper Adapter



Max. 3,000rpm Speed ratio 1 : 1



Max. @ 3,000rpm 10kW



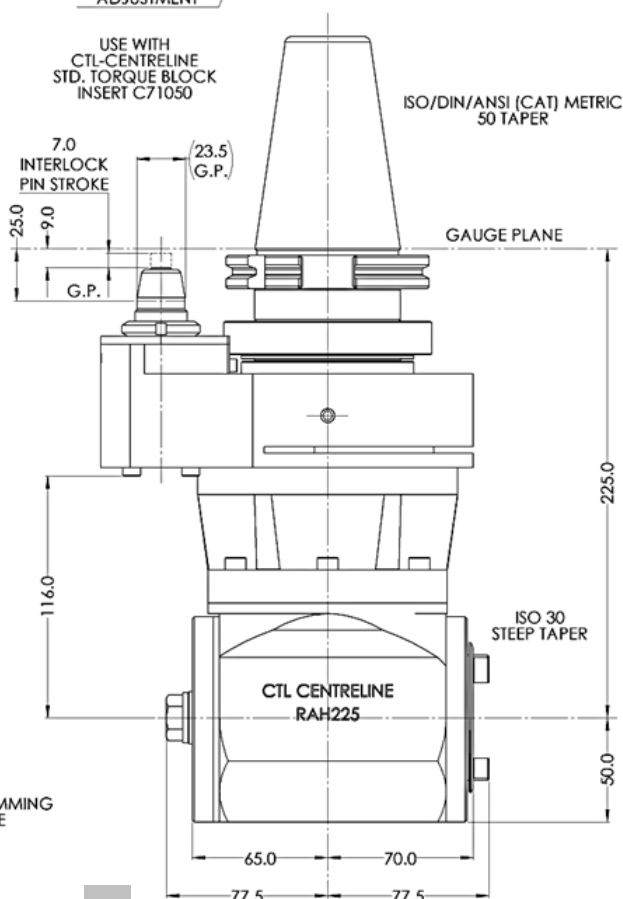
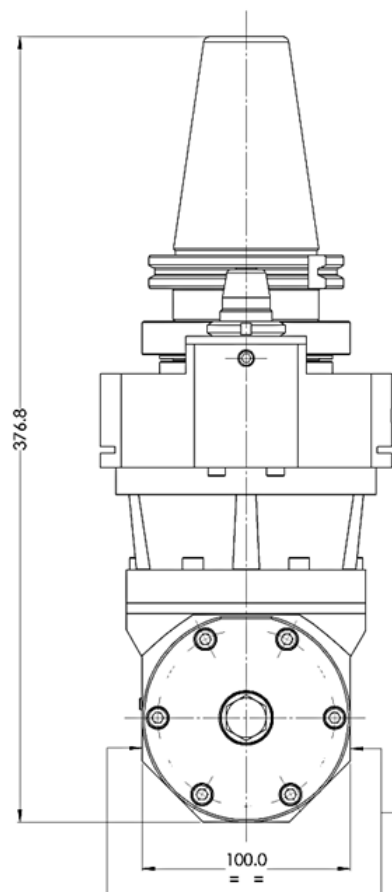
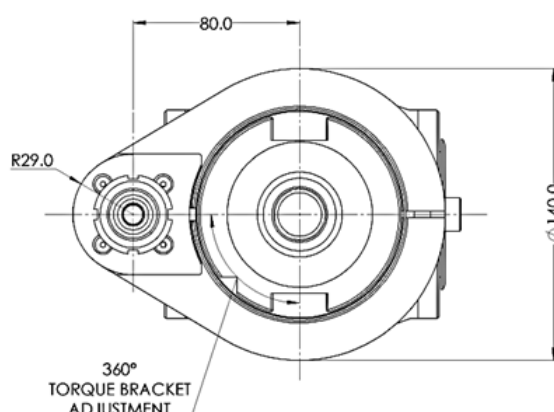
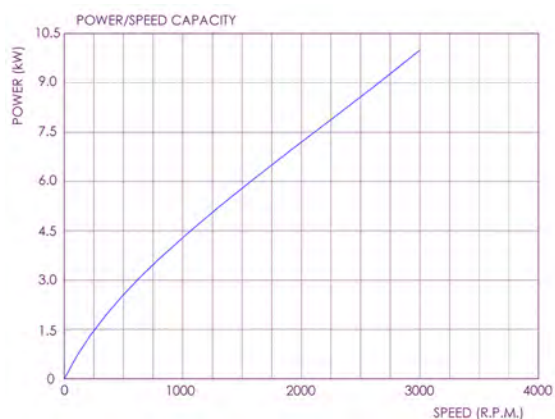
Max. @ 100rpm 63Nm

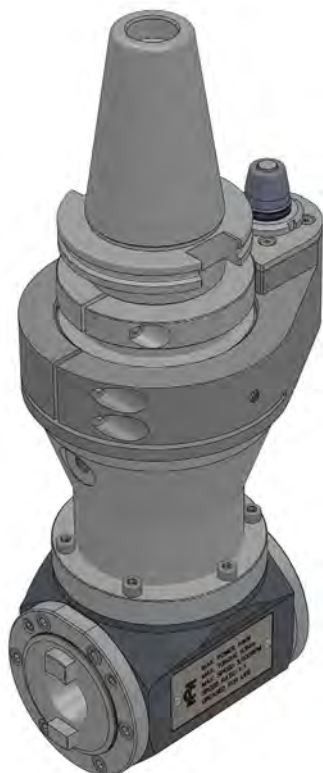


(Without tools) 15.5kg



Input Opposite to Output









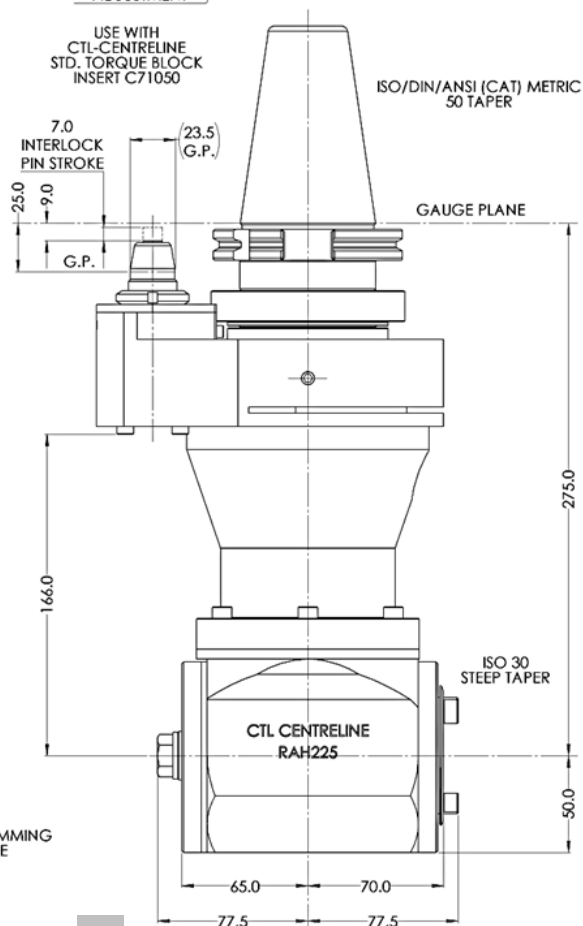
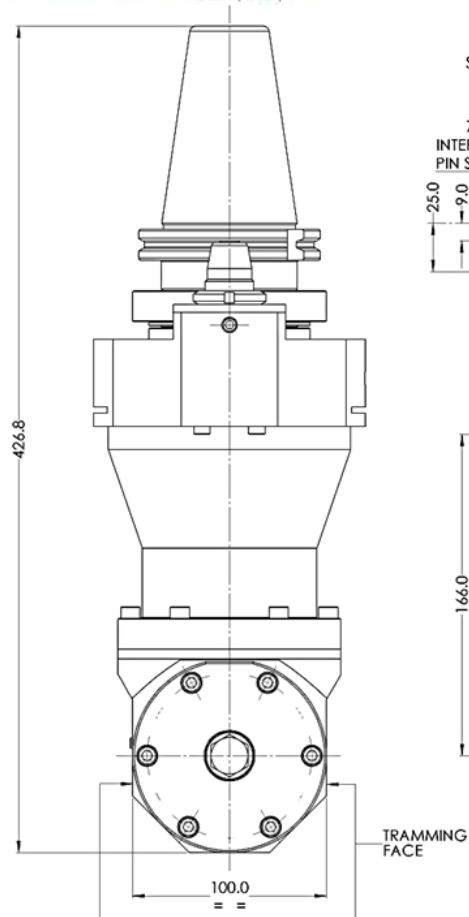
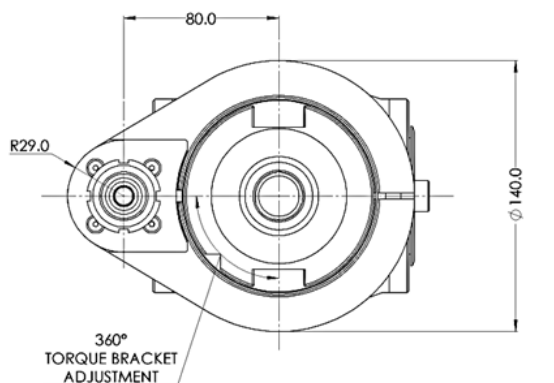
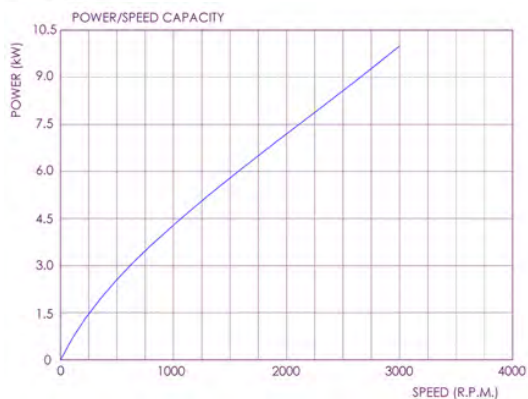


RAM 225 - 275 Extended 90° Angle Head

225

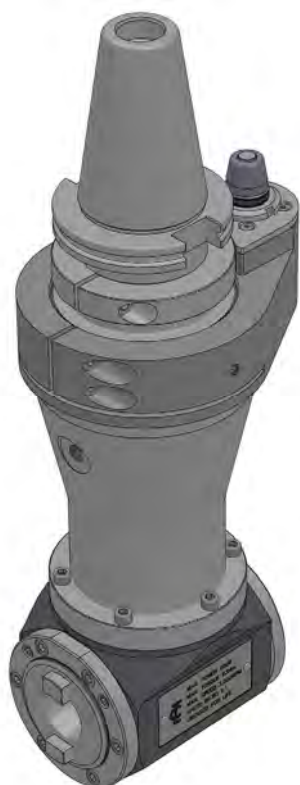
Technical Data

	ISO30 Steep Taper Adapter	
	Max. 3,000rpm	Speed ratio 1 : 1
	Max. @ 3,000rpm	10kW
	Max. @ 100rpm	63Nm
	(Without tools)	20.9kg
	Input Opposite to Output	



RAM 225 - 325 Extended 90° Angle Head

225



Technical Data



ISO30 Steep Taper Adapter



Max. 3,000rpm Speed ratio 1 : 1



Max. @ 3,000rpm 10kW



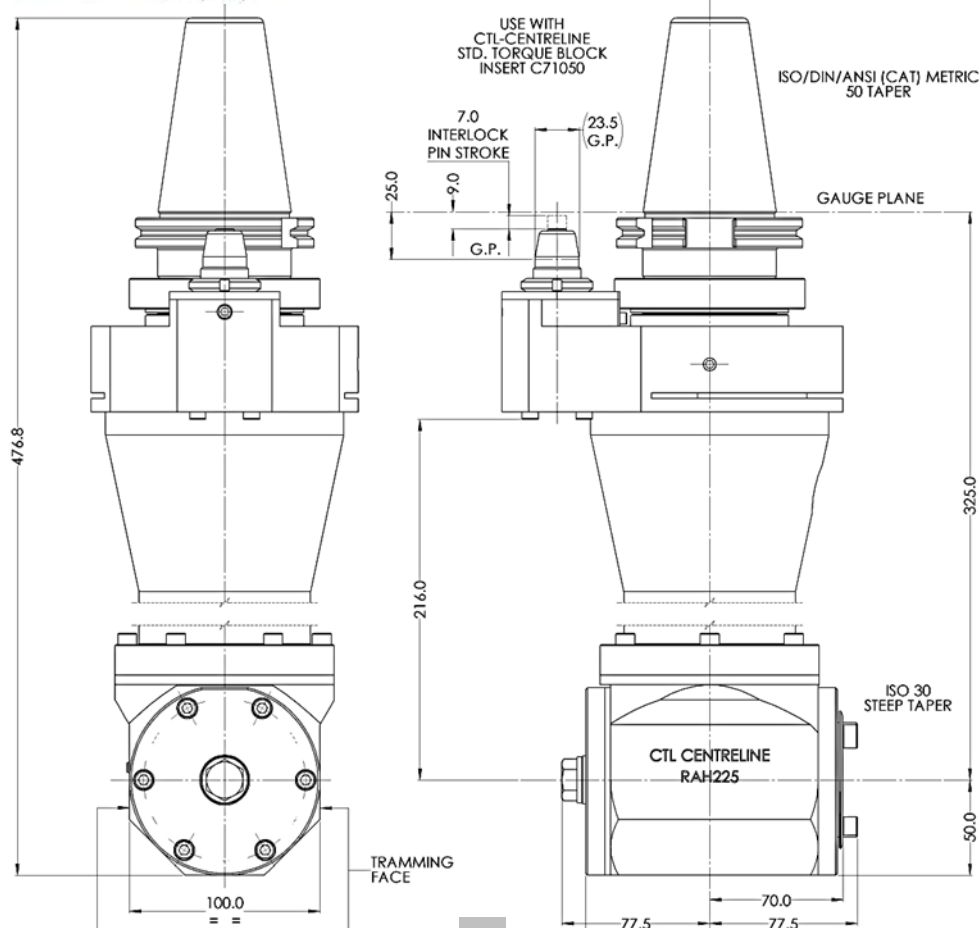
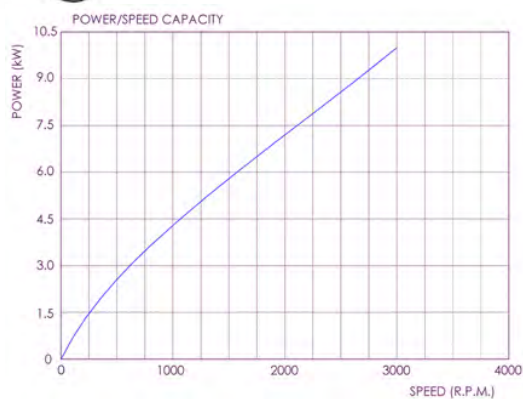
Max. @ 100rpm 63Nm



(Without tools) 23.7kg



Input Opposite to Output





RAM 225 - 375 Extended 90° Angle Head

225

Technical Data



ISO30 Steep Taper Adapter



Max. 3,000rpm Speed ratio 1 : 1



Max. @ 3,000rpm 10kW



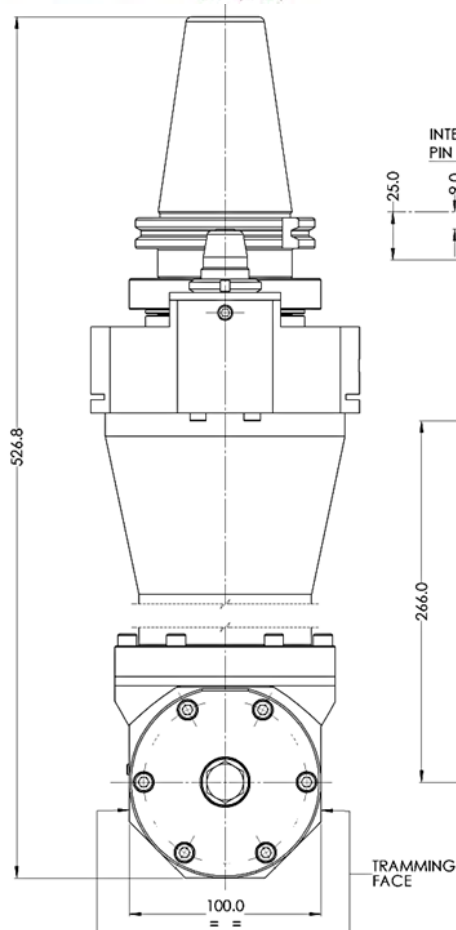
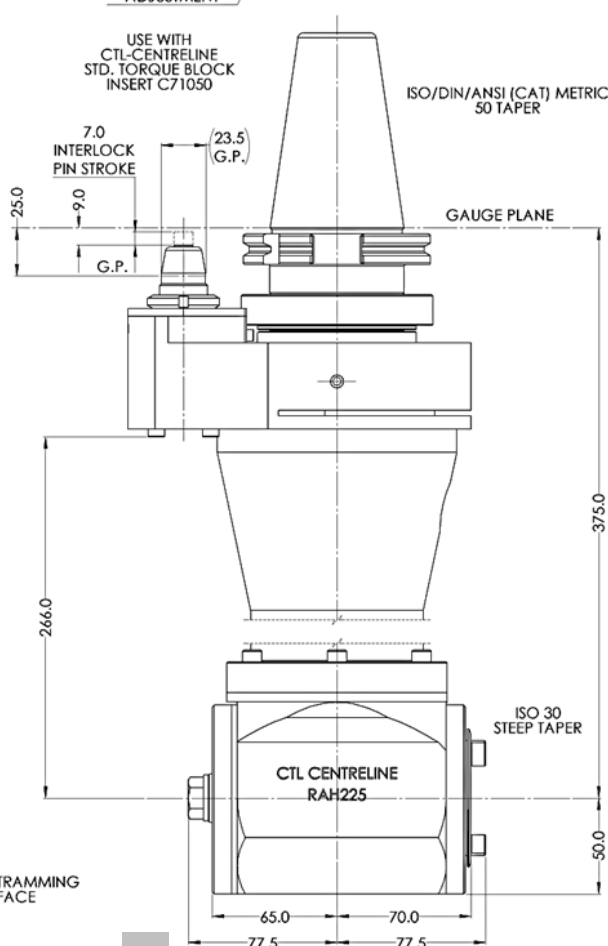
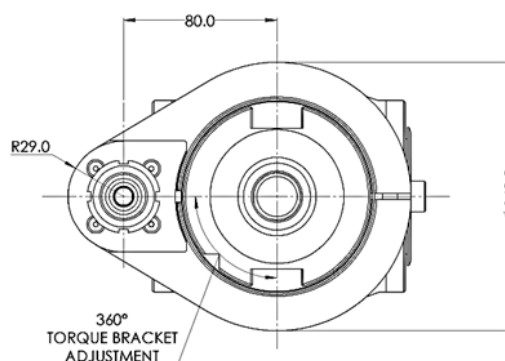
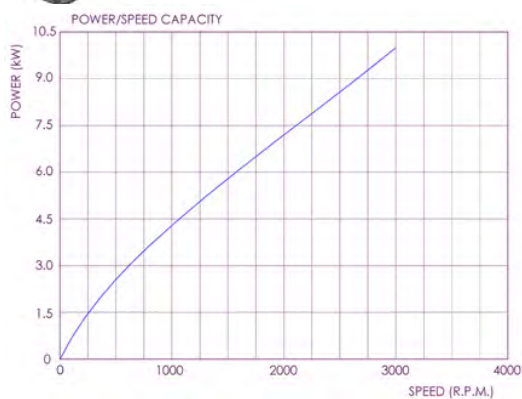
Max. @ 100rpm 63Nm



(Without tools) 25.8kg



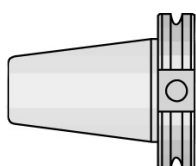
Input Opposite to Output



225 Series 90° Angle Heads

225

- Standard Length or Extended length
- ER40 (30mm Cap.) Collet Chuck or Modular ISO30 Output
- High Pressure Through Coolant option with Outlet via Body or Spindle
- Single or Double Output
- Location Pin Centres — 80mm, 100mm & 110mm
- 360° adjustability
- Special output options available
- Maintenance free sealed design. Grease lubricated



Available drive Tapers:

BT50

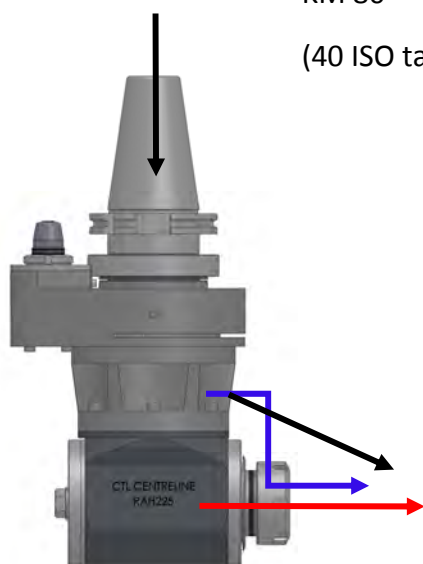
CAT50 (DIN / ANSI / SK)

HSK 80A, HSK 100A

Capto C8

KM 80

(40 ISO tapers and other options available on request)

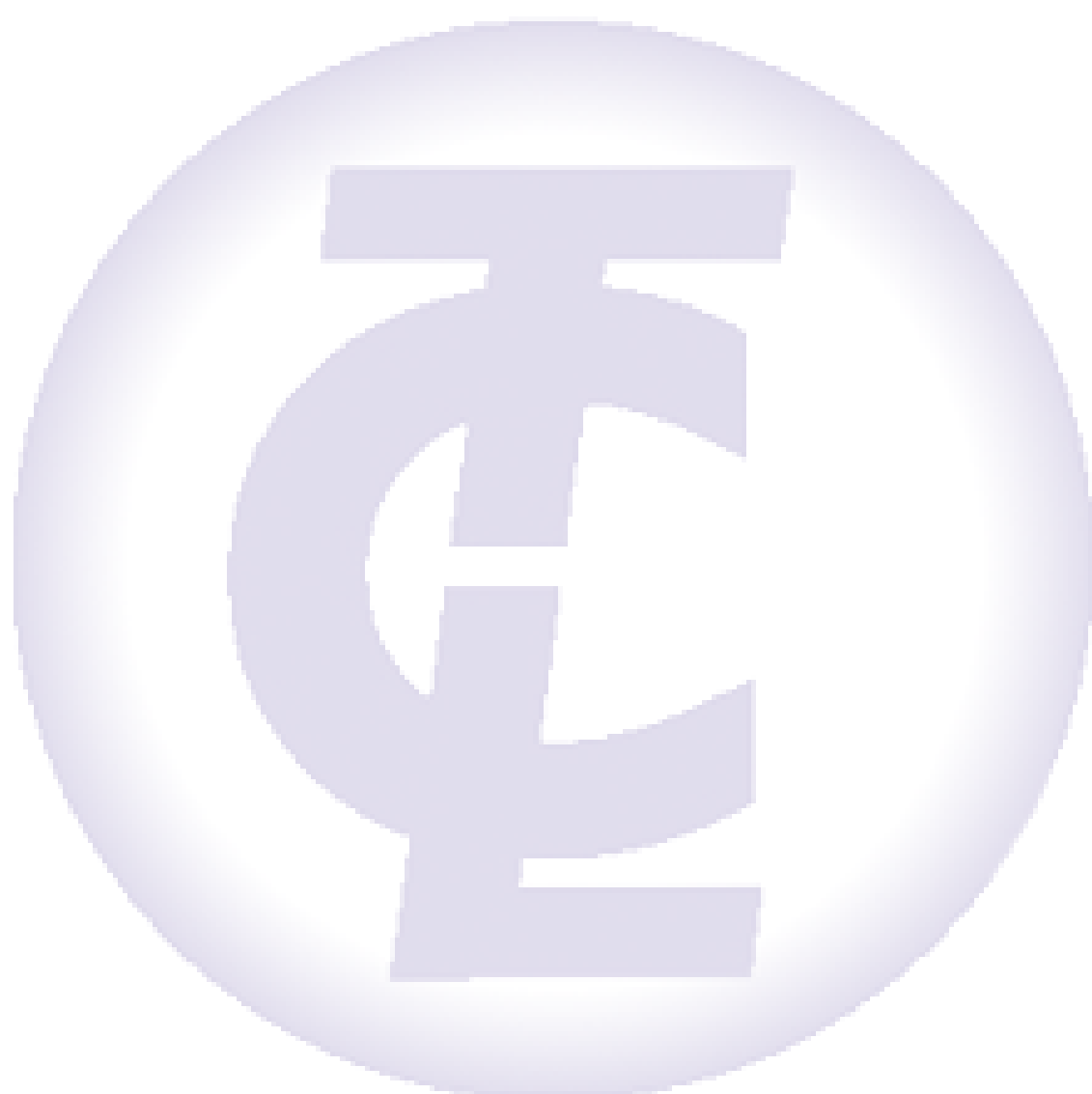


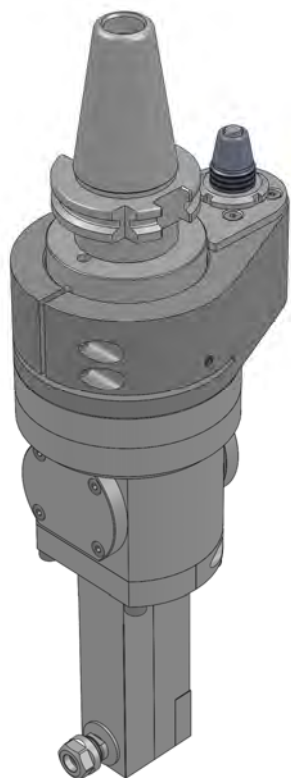
Internal Coolant Options:

A - In through Shank - Out through Body

B - In through Shank - Out through Spindle / Tool

C - In through Shank - out via Special Through Coolant Locknut









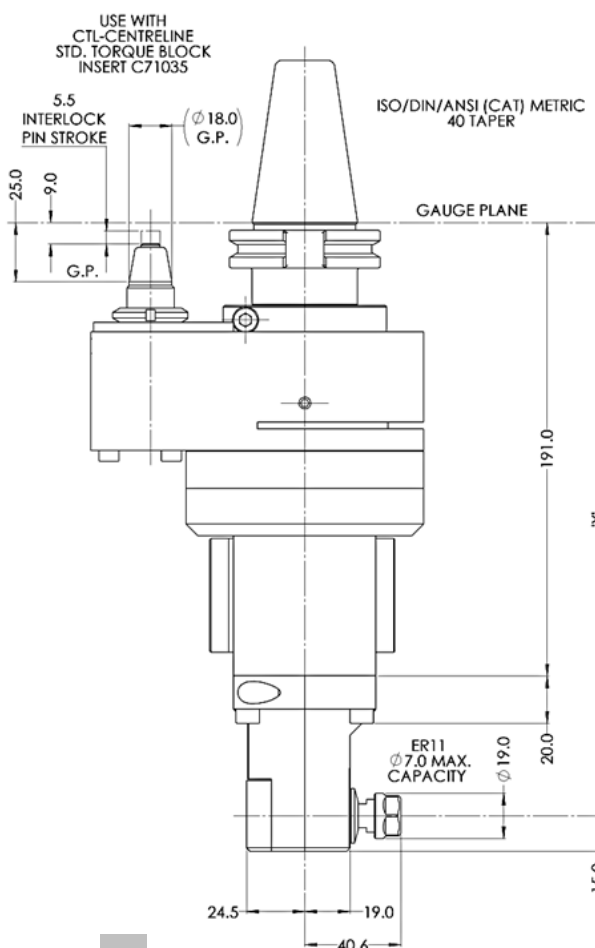
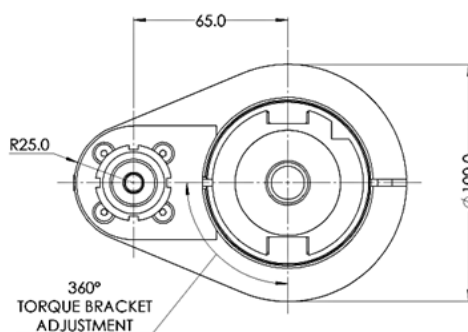
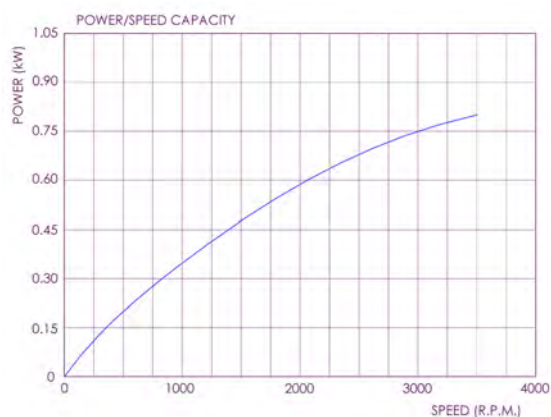


RAD 190 - 11 Modular 90° Angle Head

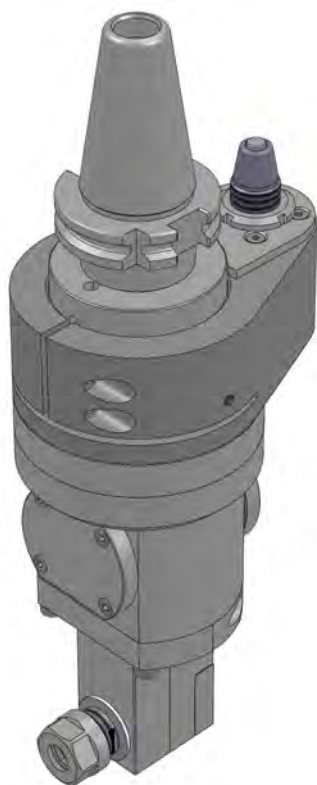
190

Technical Data

	ER11 —7mm / M5	
	Max. 3,500rpm	Speed ratio 1 : 1.2
	Max. @ 3,500rpm	0.8kW
	Max. @ 100rpm	4.8Nm
	(Without tools)	See Table
	Input Opposite to Output	



See table on
page 35 for
available
gauge
lengths



RAD 190 - 16 Modular 90° Angle Head

190

Technical Data



ER16 —10mm / M6



Max. 3,500rpm Speed ratio 1 : 1



Max. @ 3,500rpm 0.8kW



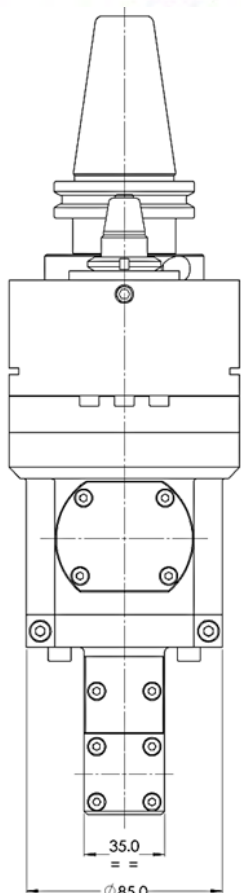
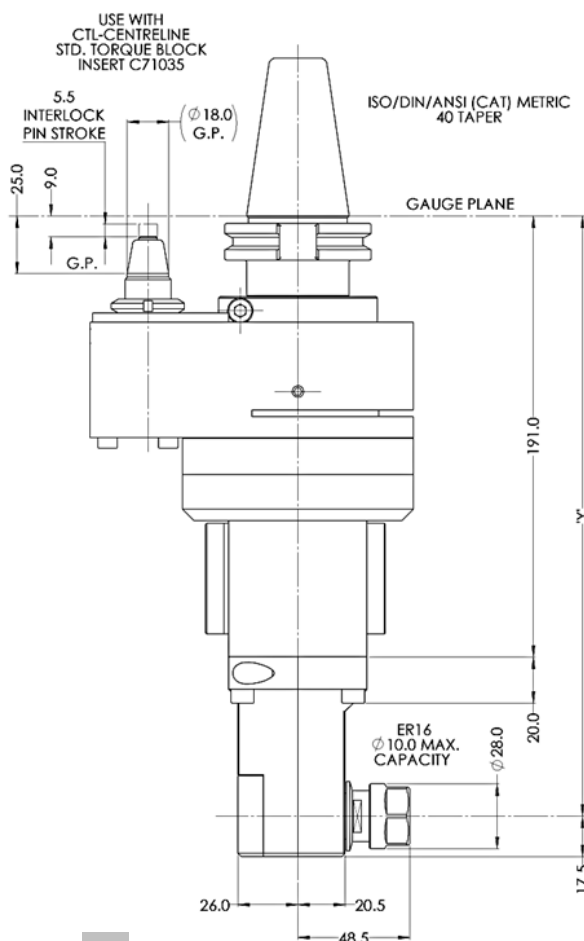
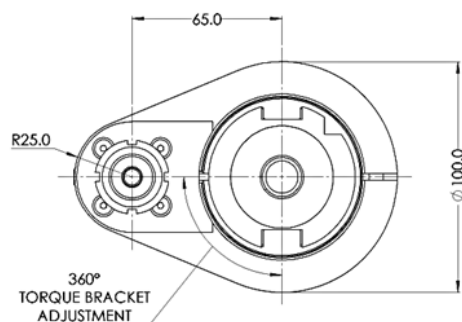
Max. @ 100rpm 4.8Nm



(Without tools) See Table



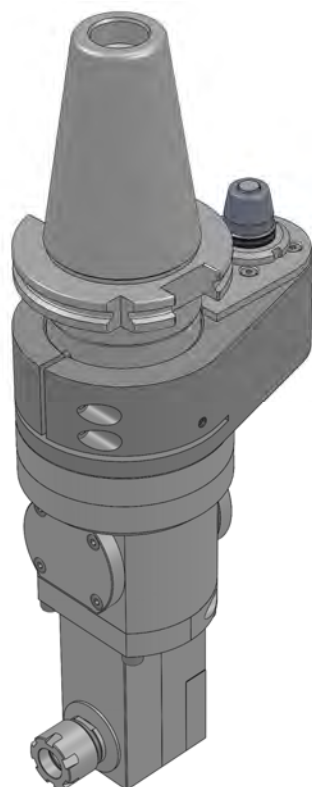
Input Opposite to Output









See table on
page 35 for
available
gauge
lengths

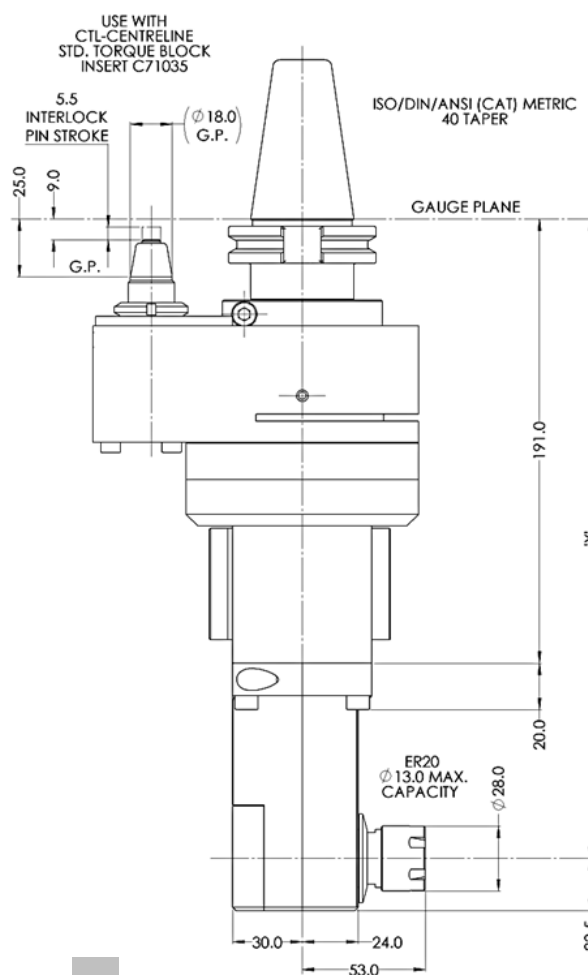
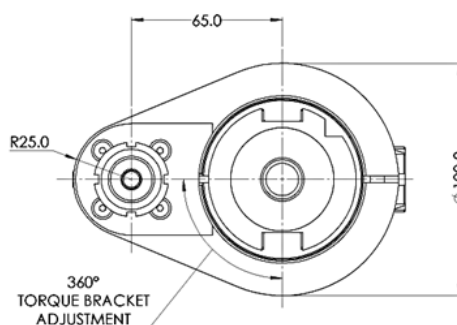
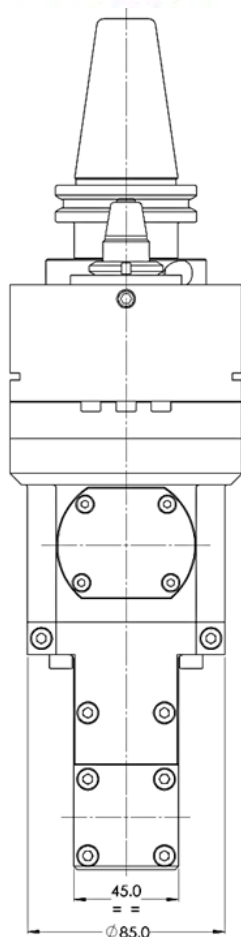
RAD 190 - 20 Modular 90° Angle Head

190



Technical Data

	ER20 —13mm / M10	
	Max. 3,500rpm	Speed ratio 1.25 : 1
	Max. @ 3,500rpm	0.81kW
	Max. @ 100rpm	48Nm
	(Without tools)	See Table
	Input Opposite to Output	

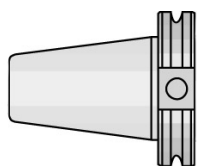


See table on
page 35 for
available
gauge

190 Series Modular Slimline 90° Angle Heads

190

- Interchangeable length and collet size modules all on a common drive module
- ER11 (7mm Cap.), ER16 (10mm Cap.) or ER20 (13mm Cap.) Collet Sizes
- Double Output modules available on request
- 360° adjustability
- Maintenance free sealed design. Grease lubricated



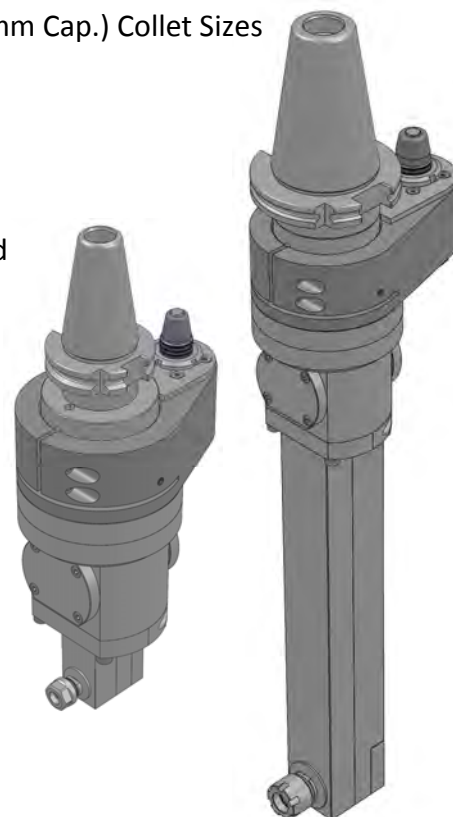
Available drive Tapers:

BT40—BT50

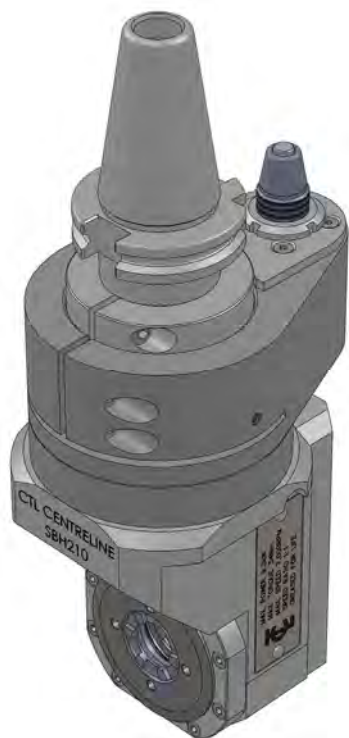
CAT40—CAT50 (DIN / ANSI / SK)

HSK63A, HSK80A, HSK100A

(Other options available on request)









Increment	RAD190-11		RAD190-16		RAD190-20	
	Gauge Length -Y-	Weight (kg)	Gauge Length -Y-	Weight (kg)	Gauge Length -Y-	Weight (kg)
- 00	230.0mm	8.15	236.0mm	8.75	245.0mm	9.4
- 01	250.0mm	8.4	260.0mm	9.05	275.0mm	9.9
- 02	270.0mm	8.65	284.0mm	9.35	305.0mm	10.4
- 03	290.0mm	8.9	308.0mm	9.65	335.0mm	10.9
- 04	310.0mm	9.15	332.0mm	9.95	365.0mm	11.5
- 05	330.0mm	9.4	356.0mm	10.25	395.0mm	12.0
- 06			380.0mm	10.55	425.0mm	12.5
- 07			404.0mm	10.85	455.0mm	13.1
- 08					485.0mm	13.6
- 09					515.0mm	14.1

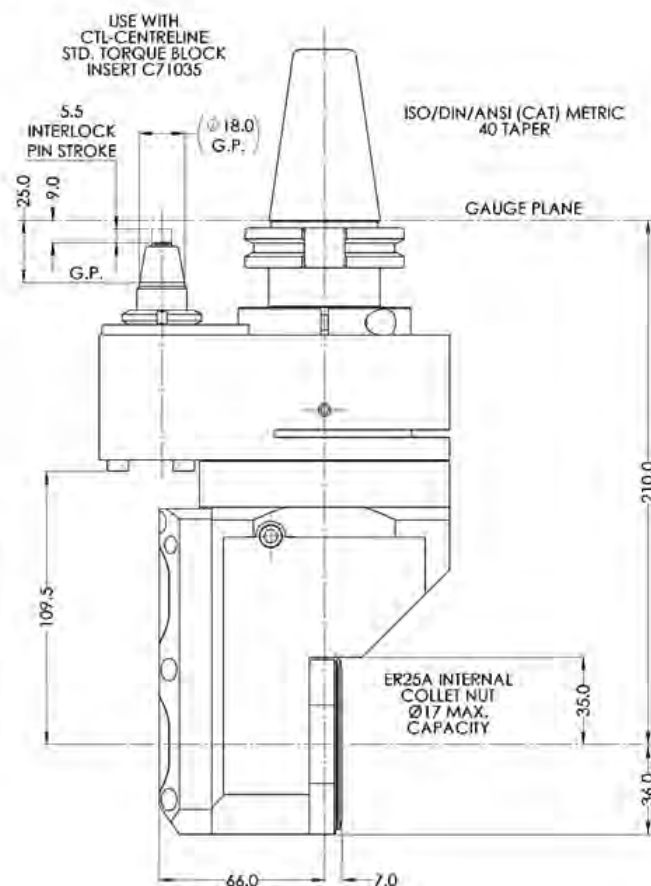
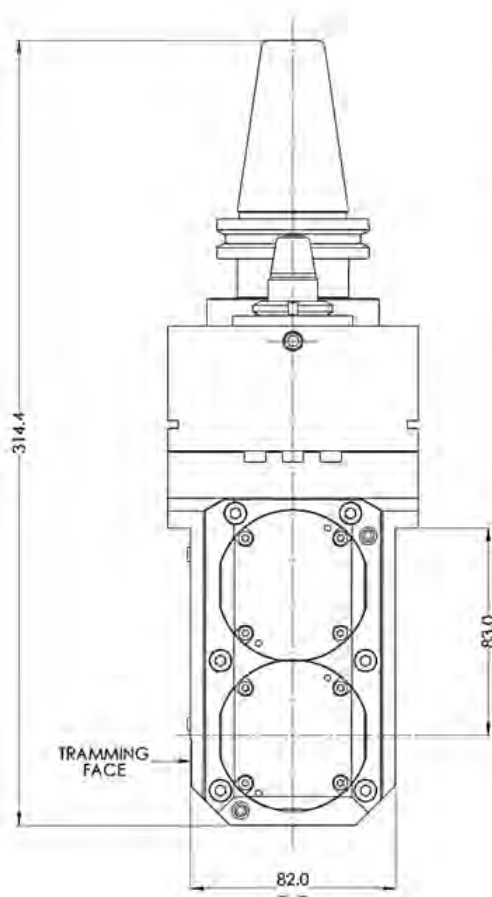
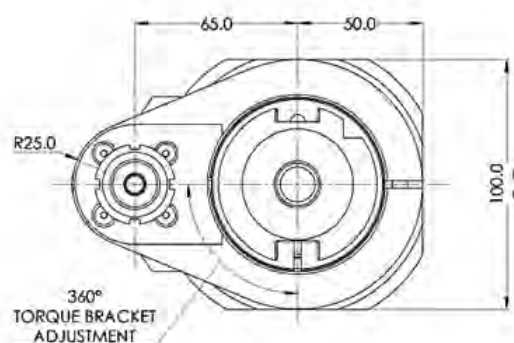
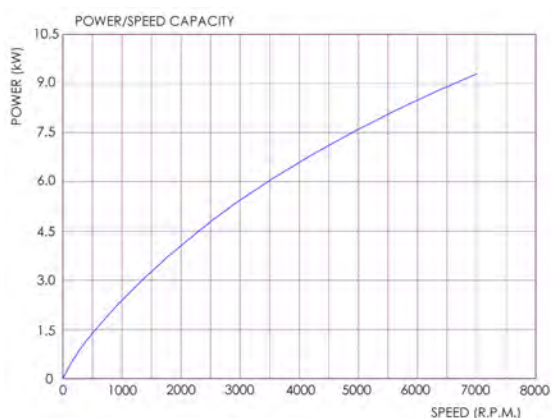


SBH210 Set Back 90° Angle Head

210

Technical Data

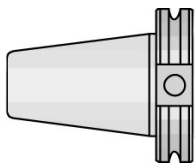
	ER25A —16mm / M12	
	Max. 7,000rpm Speed ratio 1 : 1	
	Max. @ 7,000rpm	9.3kW
	Max. @ 100rpm	34Nm
	(Without tools)	9.8kg
	Input Opposite to Output	



210 Series Set Back 90° Angle Heads

210

- Extended length available on request
- ER25 (16mm Cap.) Collet Chuck or dedicated milling arbor output options
- High Pressure Through Coolant option with Outlet via Body
- Location Pin Centres — 80mm, 100mm & 110mm
- 360° adjustability
- Special output options available
- Maintenance free sealed design. Grease lubricated



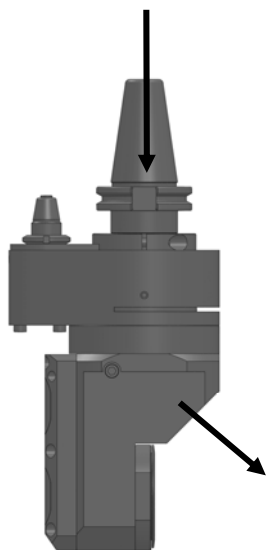
Available drive Tapers:

BT40 - BT50

CAT40 - CAT50 (DIN / ANSI / SK)

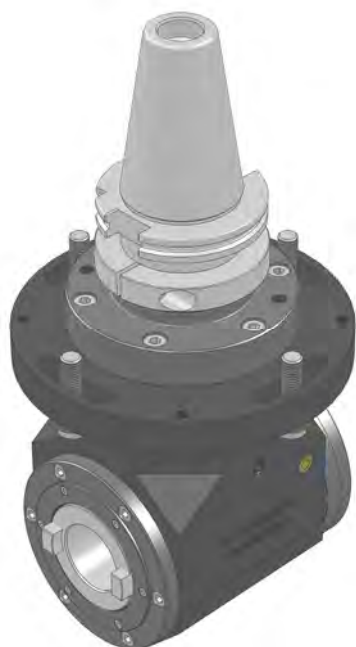
HSK63A, HSK 80A, HSK 100A

(Other options available on request)



Internal Coolant Options:







A - In through Shank - Out through Body

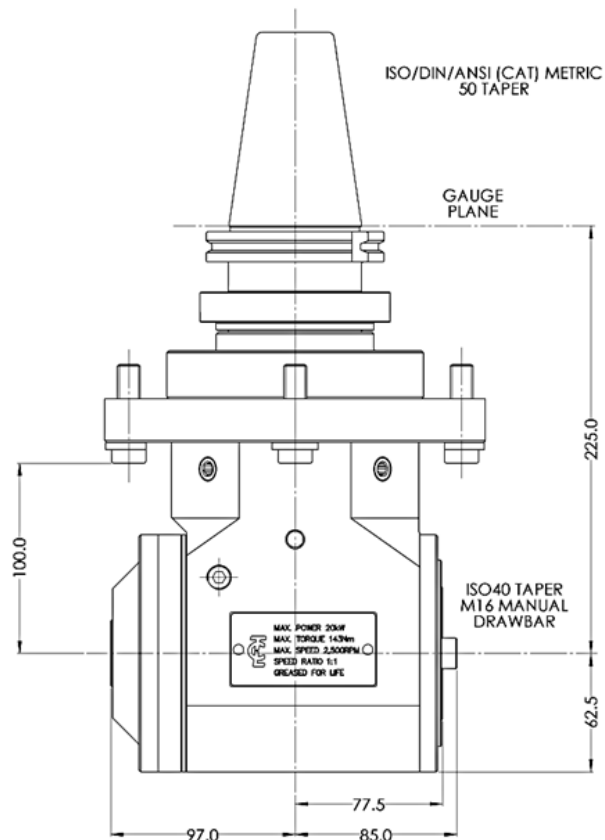
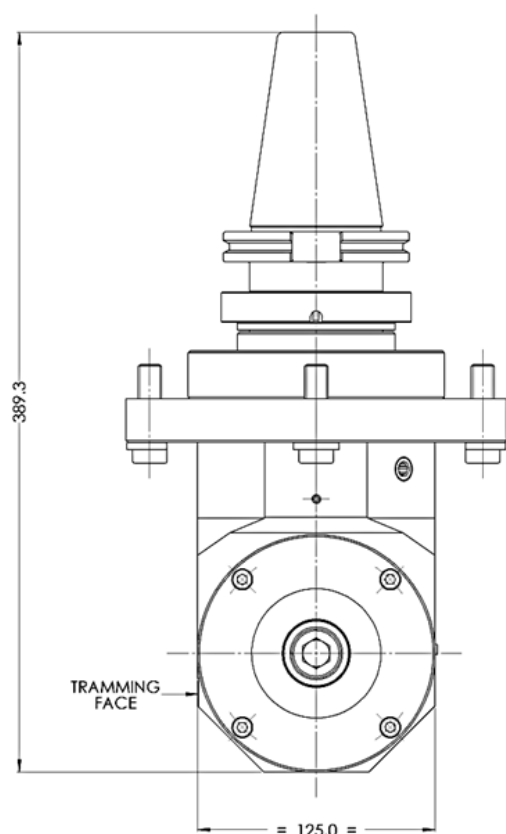
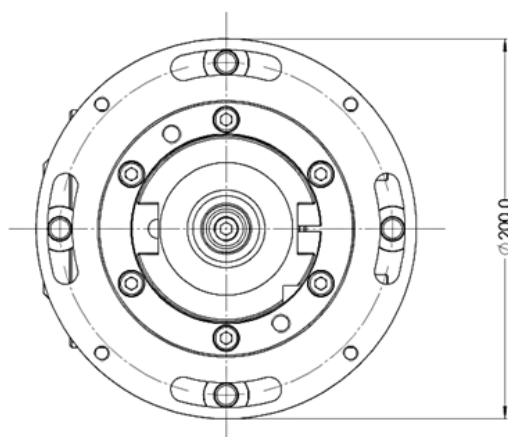
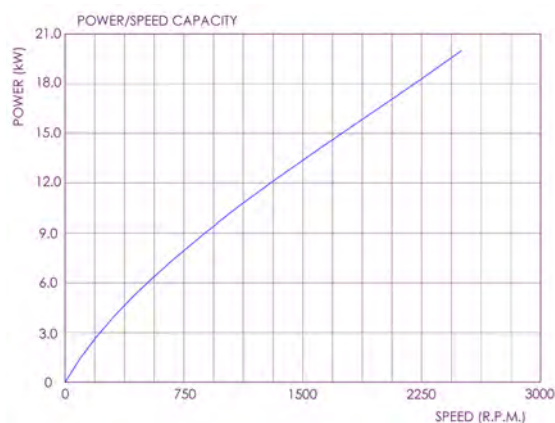


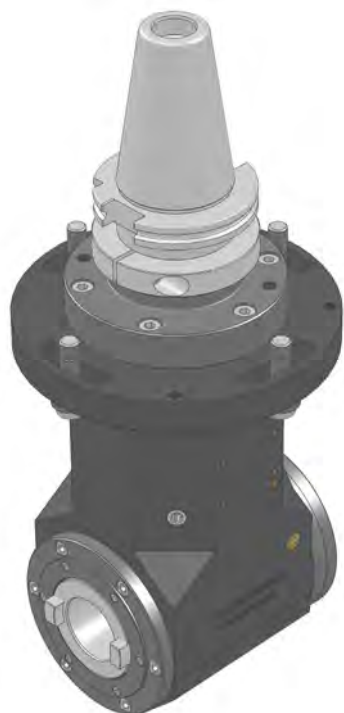
RAM400 Heavy Duty 90° Angle Head

400

Technical Data

	ISO40 Steep Taper Adapter	
	Max. 2,500rpm Speed ratio 1 : 1	
	Max. @ 2,500rpm	20kW
	Max. @ 100rpm	143Nm
	(Without tools)	32kg
	Input Opposite to Output	





RAM400 - 300 Extended Heavy Duty 90° Angle Head

400

Technical Data



ISO40 Steep Taper Adapter



Max. 2,500rpm Speed ratio 1 : 1



Max. @ 2,500rpm 20kW



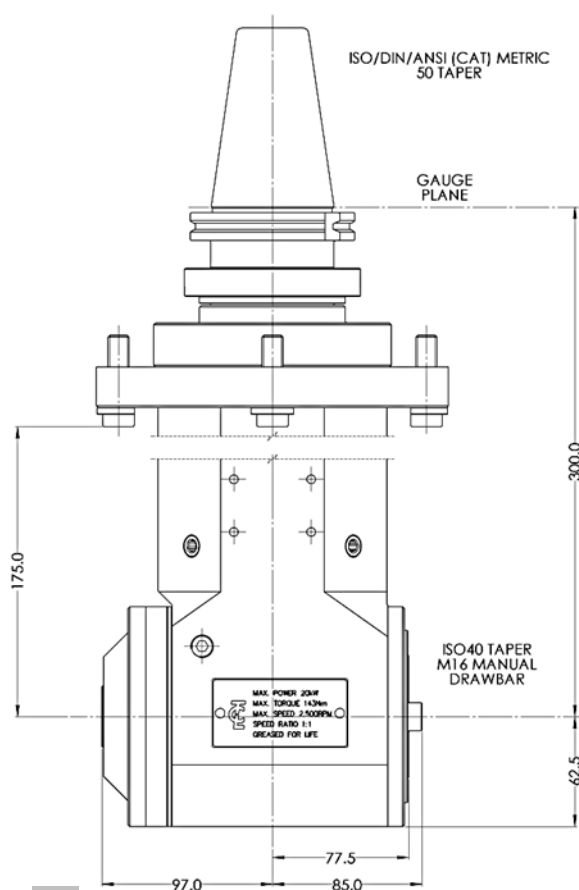
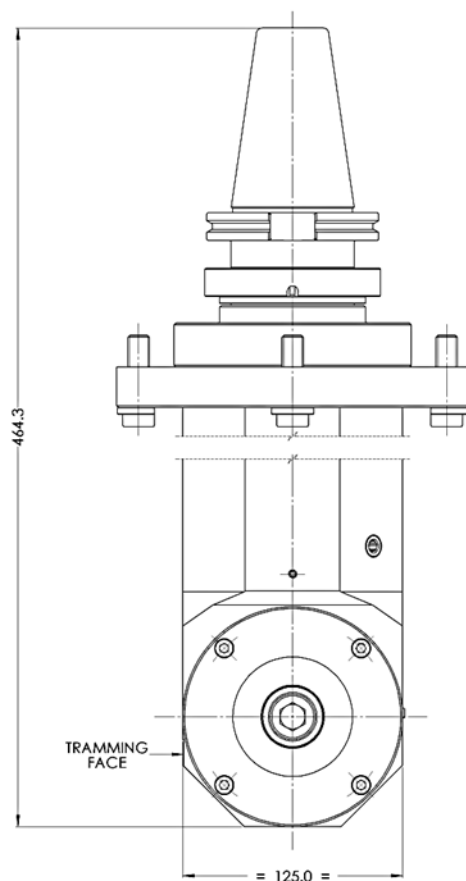
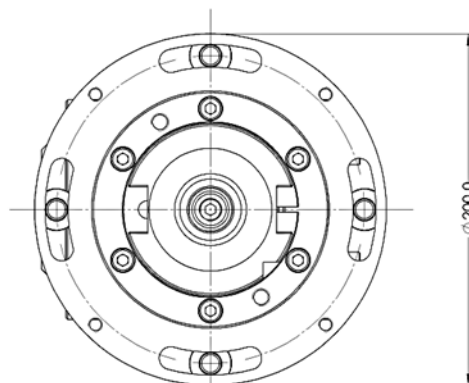
Max. @ 100rpm 143Nm

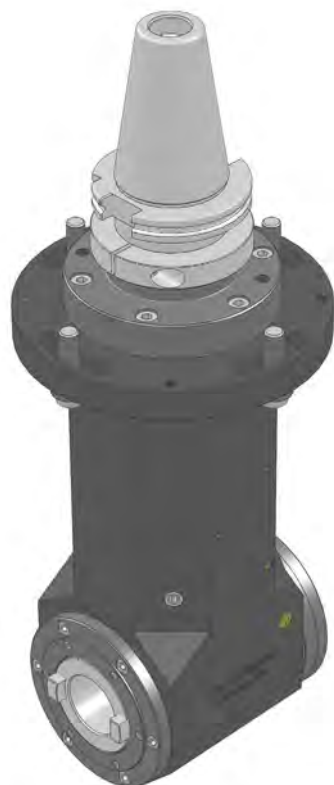


(Without tools) 40.2kg



Input Opposite to Output





RAM400 - 375 Extended Heavy Duty 90° Angle Head

400

Technical Data



ISO40 Steep Taper Adapter



Max. 2,500rpm Speed ratio 1 : 1



Max. @ 2,500rpm 20kW



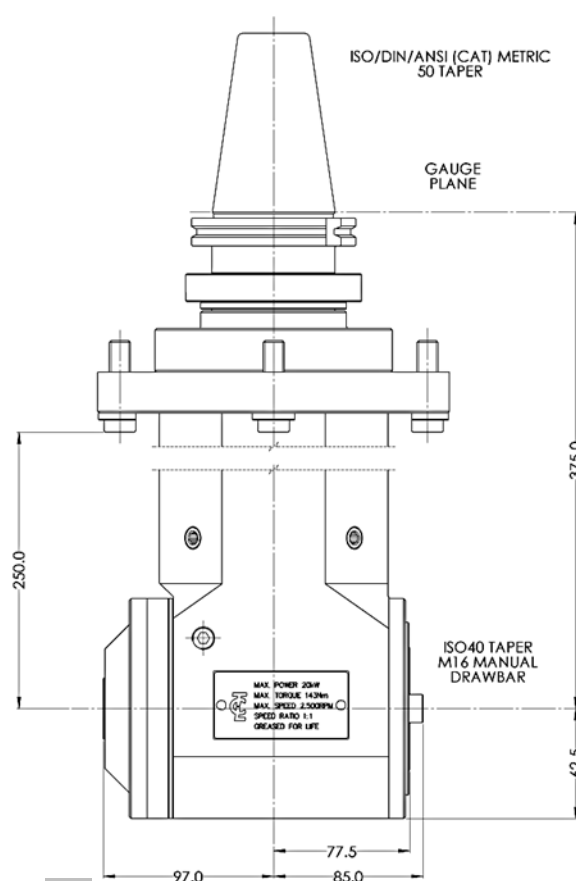
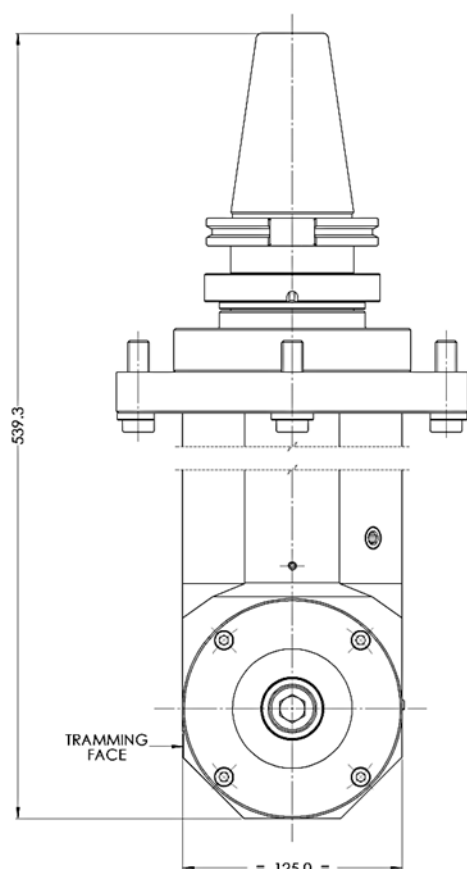
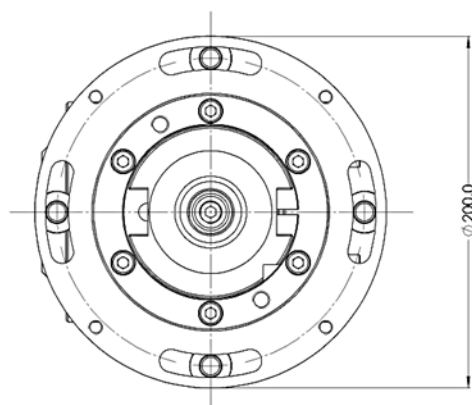
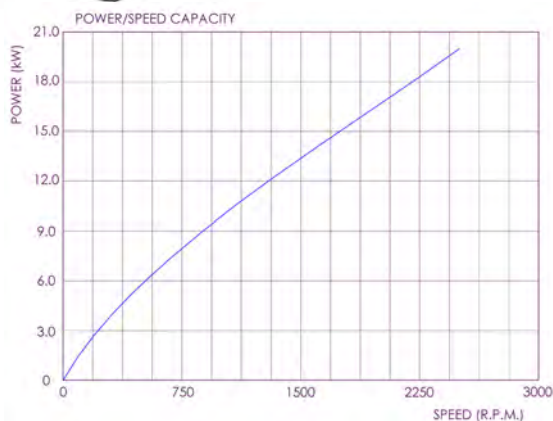
Max. @ 100rpm 143Nm



(Without tools) 47.7kg



Input Opposite to Output





RAM400 - 450 Extended Heavy Duty 90° Angle Head

400

Technical Data



ISO40 Steep Taper Adapter



Max. 2,500rpm Speed ratio 1 : 1



Max. @ 2,500rpm 20kW



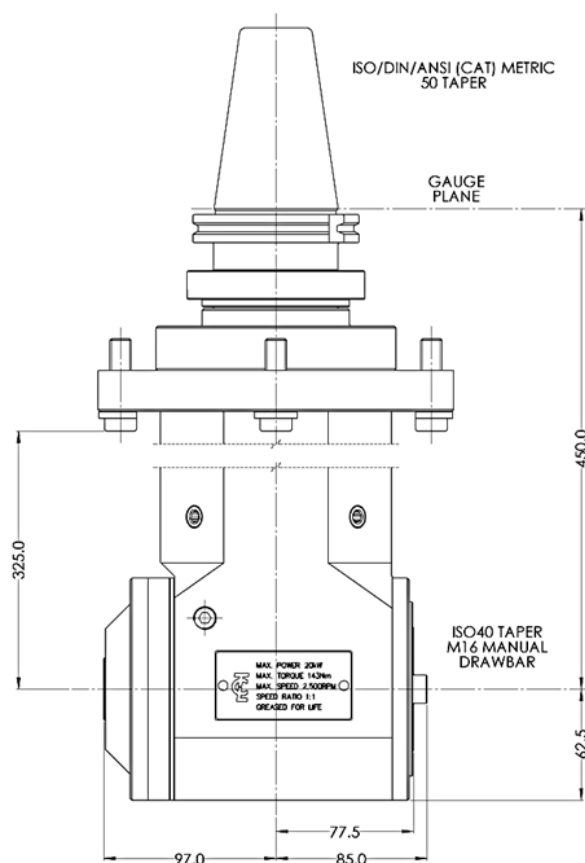
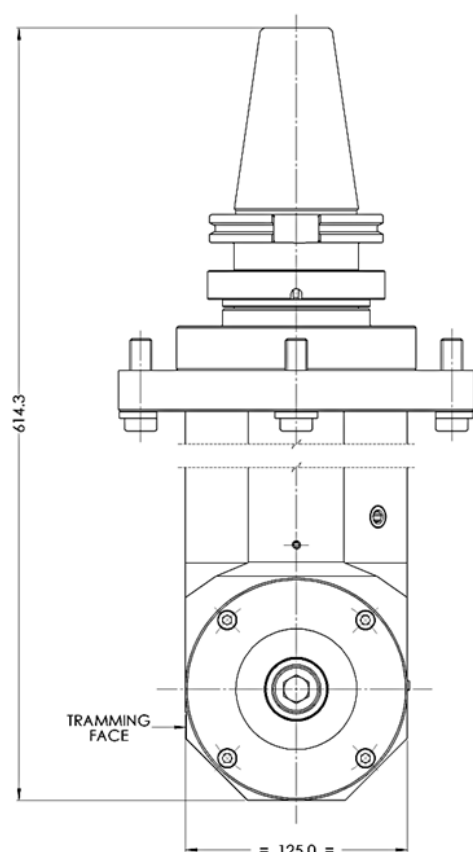
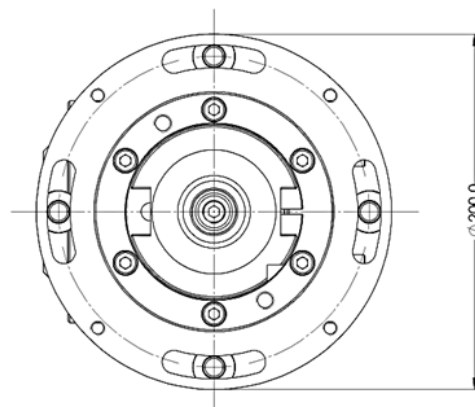
Max. @ 100rpm 143Nm

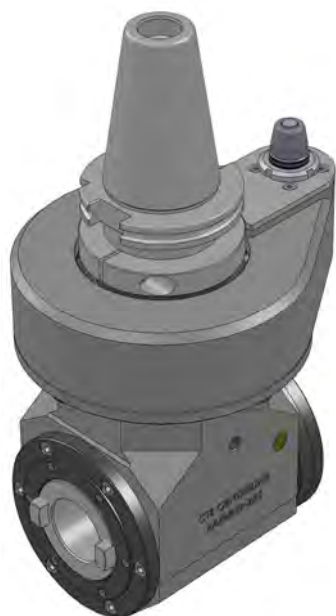


(Without tools) 55.2kg



Input Opposite to Output





RAM400 - TC Aluminium Body Heavy Duty 90° Angle Head

400

Technical Data



ISO40 Steep Taper Adapter



Max. 2,500rpm Speed ratio 1 : 1



Max. @ 2,500rpm 13kW



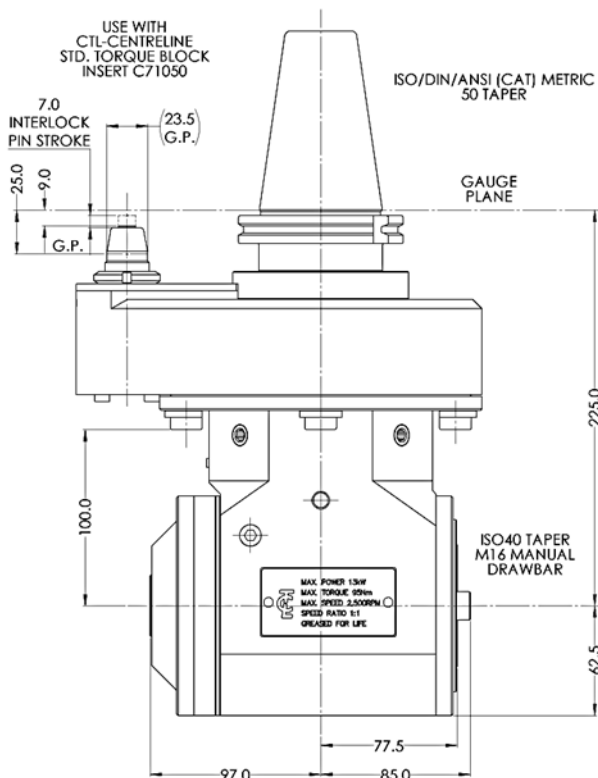
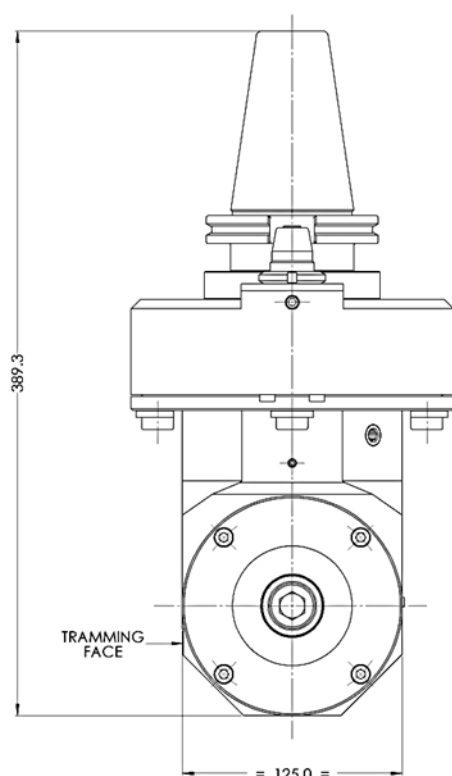
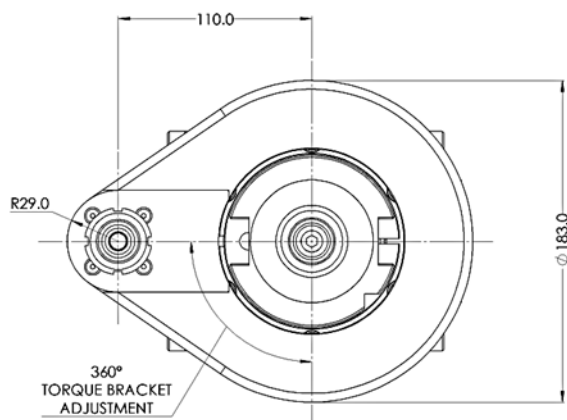
Max. @ 100rpm 95Nm



(Without tools) 26.8kg



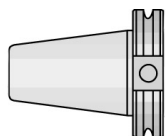
Input Opposite to Output



400 Series Heavy Duty 90° Angle Heads

400

- Standard and Extended lengths
- 40ISO output STD or special integral milling arbors or adapters available on request
- High Pressure Through Coolant options available
- Standard Steel body heads with prep for dedicated machine cowl interface
- Aluminium body units available with tapered radial location pin on 110mm centres
- Tool clamping via manual M16 / 5/8" drawbar
- Specific models available for Vertical Turning Centres - See page 48
- 360° adjustability
- Maintenance free sealed design. Grease lubricated



Available drive Tapers:

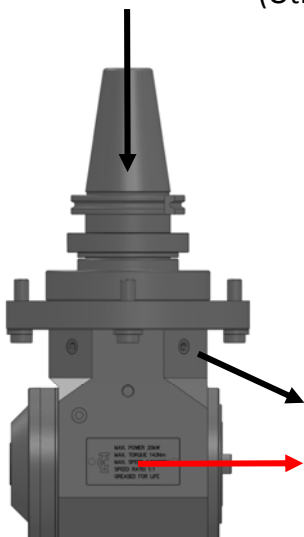
BT50

CAT50 (DIN / ANSI / SK)

HSK 100A

Special floating and face drivers to suit machine interface

(Other options available on request)



Internal Coolant Options:

A - In through Shank - Out through Body

B - In through Shank - Out through Spindle / Tool via through coolant drawbar



RAM500 Heavy Duty 90° Angle Head

500

Technical Data



ISO50 Steep Taper Adapter



Max. 1,500rpm Speed ratio 1 : 1



Max. @ 1,500rpm 35kW



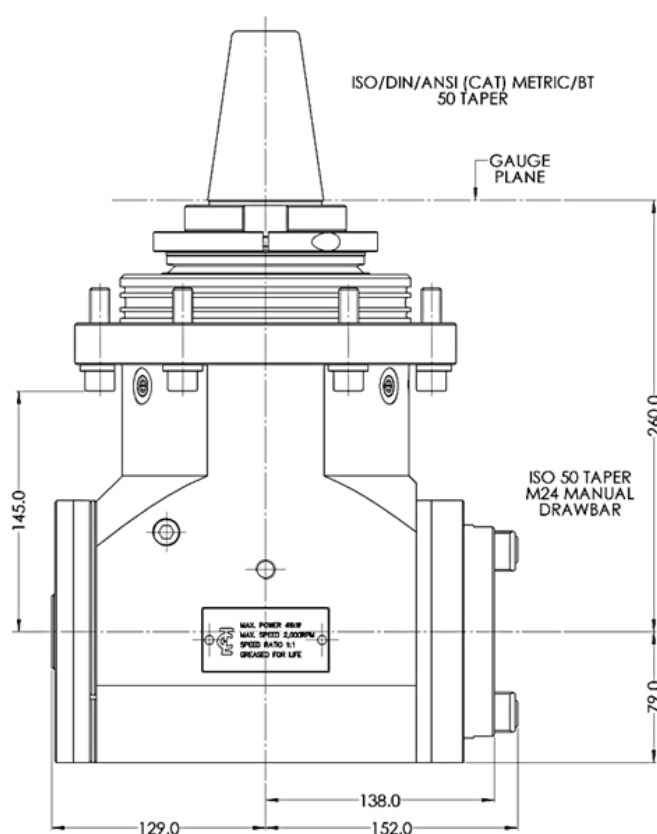
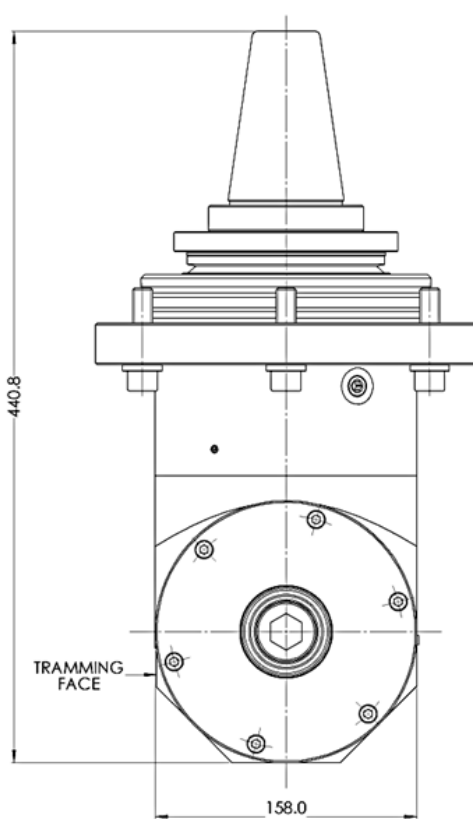
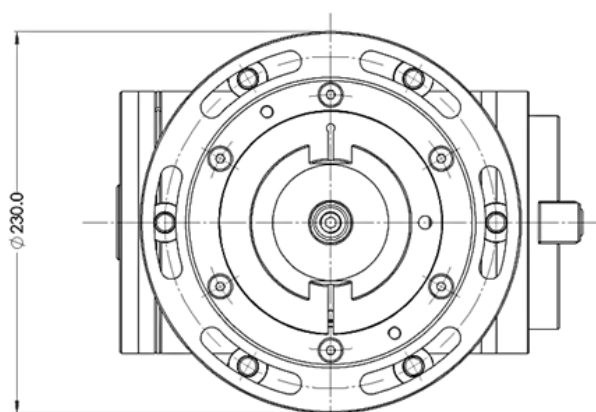
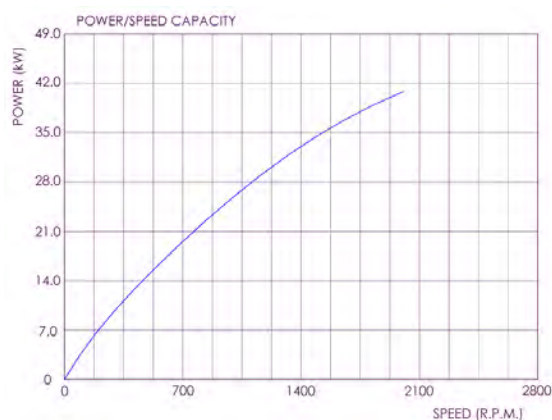
Max. @ 100rpm 372Nm

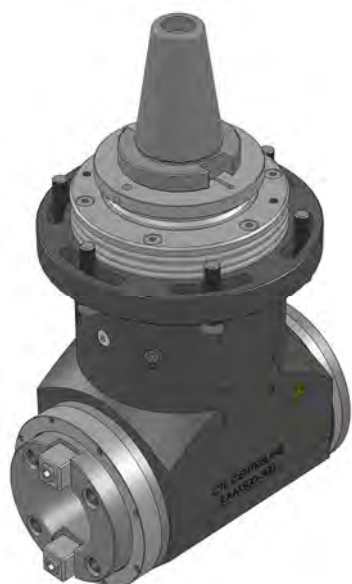


(Without tools) 45kg



Input Opposite to Output









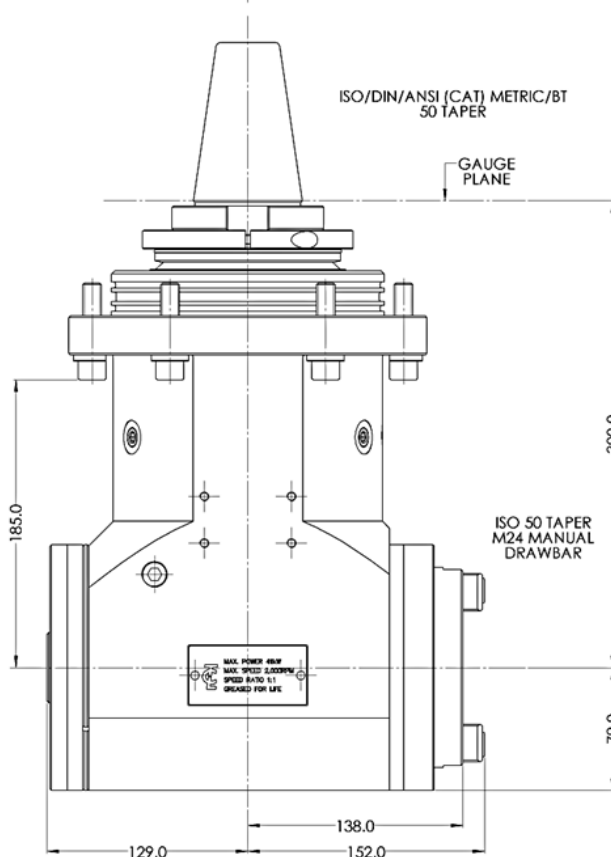
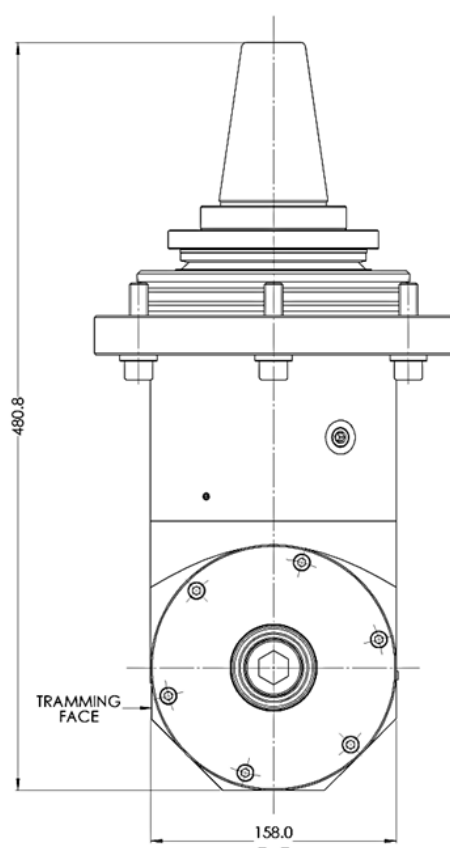
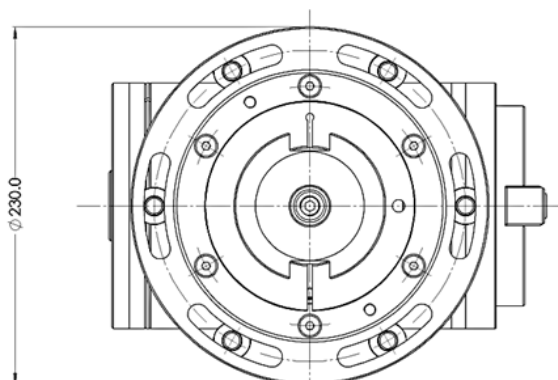
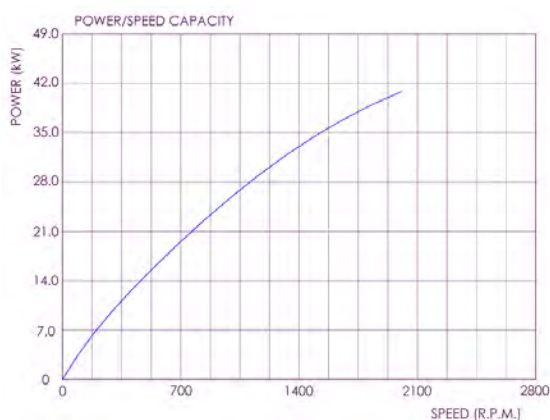


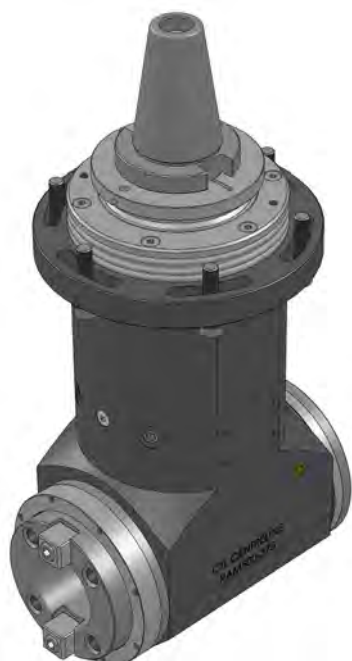
RAM 500 - 300 Extended Heavy Duty 90° Angle Head

500

Technical Data

	ISO50 Steep Taper Adapter	
	Max. 1,500rpm	Speed ratio 1 : 1
	Max. @ 1,500rpm	35kW
	Max. @ 100rpm	372Nm
	(Without tools)	kg
	Input Opposite to Output	





RAM 500 - 375 Extended Heavy Duty 90° Angle Head

500

Technical Data



ISO50 Steep Taper Adapter



Max. 1,500rpm Speed ratio 1 : 1



Max. @ 1,500rpm 35kW



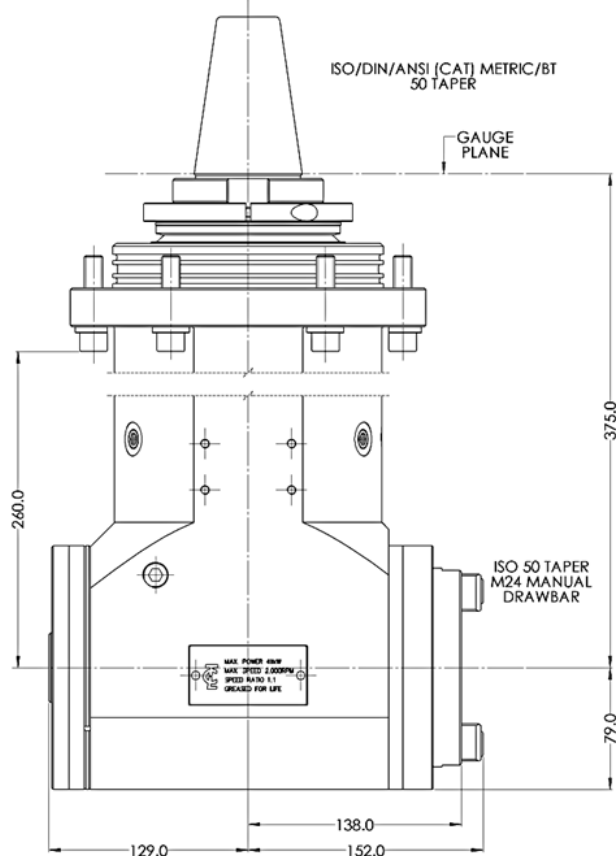
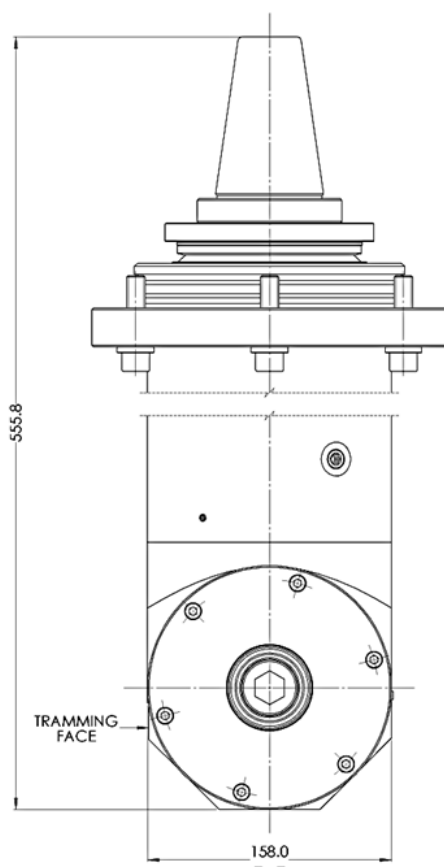
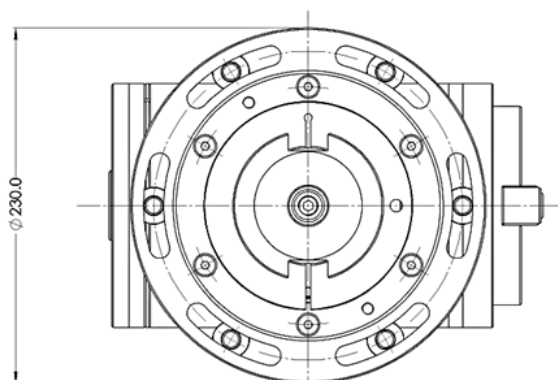
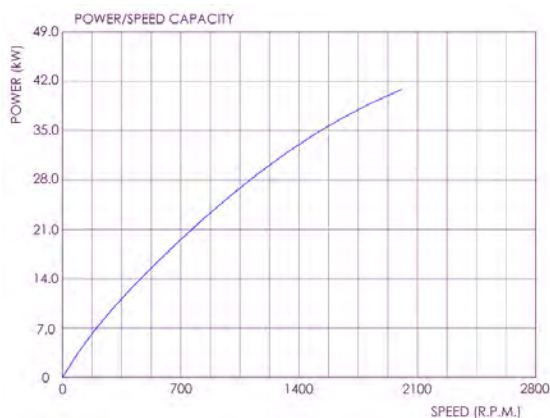
Max. @ 100rpm 372Nm



(Without tools) kg



Input Opposite to Output









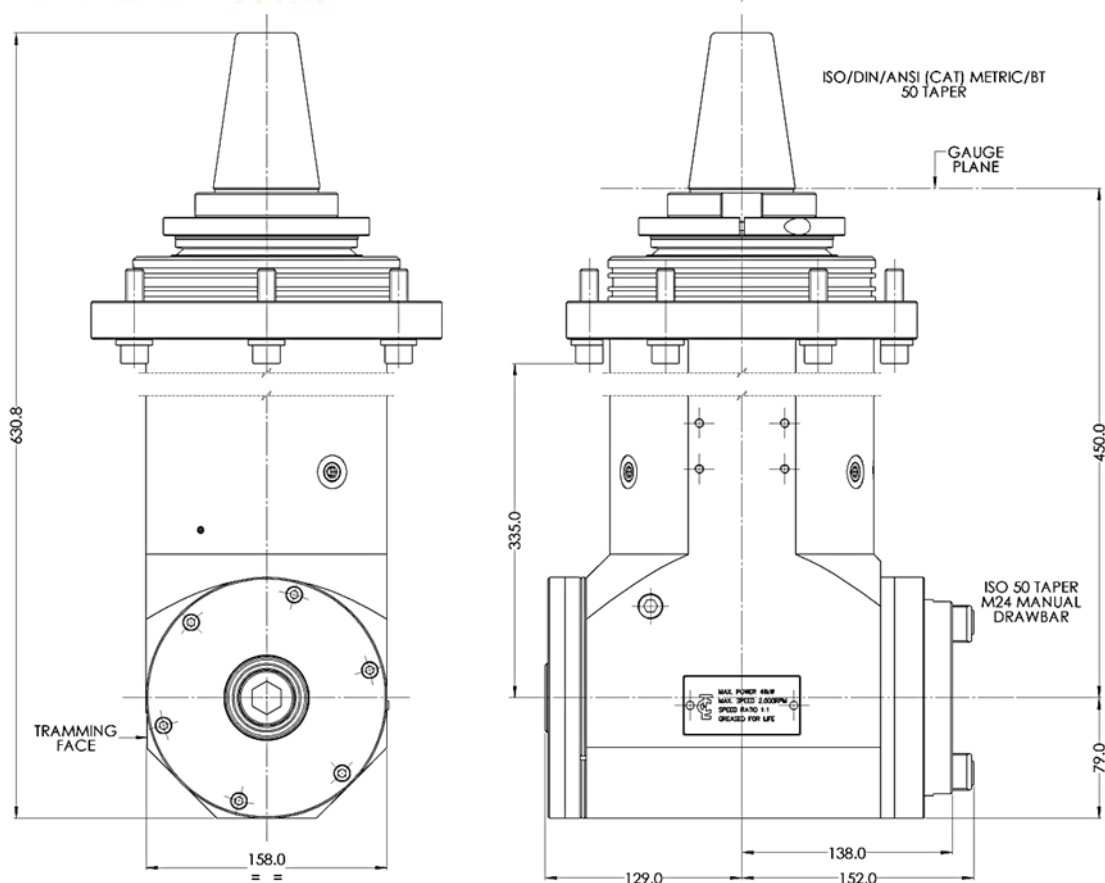
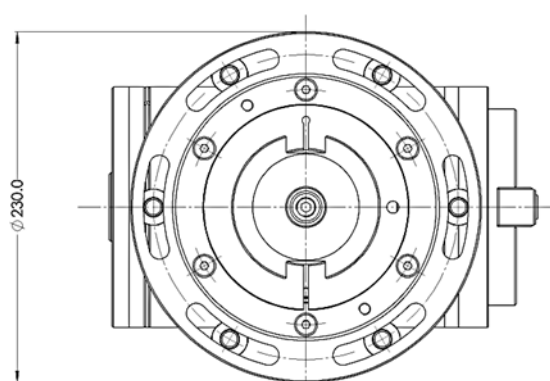
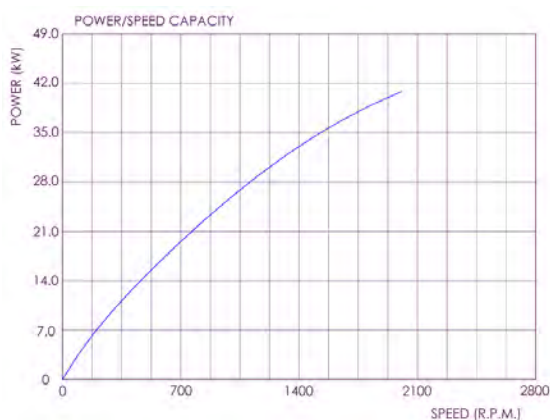


RAM 500 - 450 Extended Heavy Duty 90° Angle Head

500

Technical Data

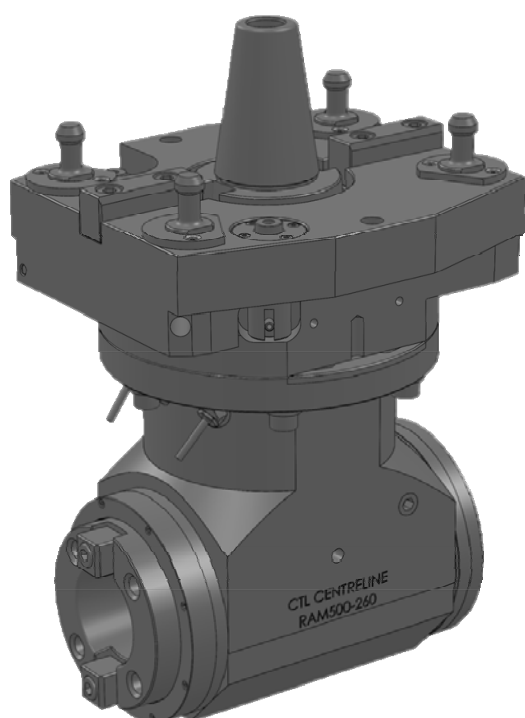
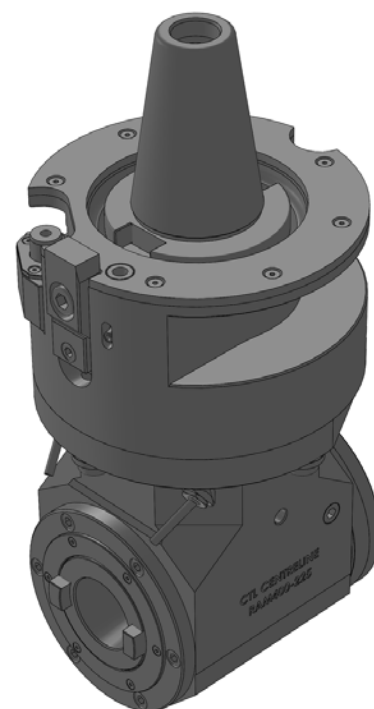
	ISO50 Steep Taper Adapter	
	Max. 1,500rpm Speed ratio 1 : 1	
	Max. @ 1,500rpm	35kW
	Max. @ 100rpm	372Nm
	(Without tools)	kg
	Input Opposite to Output	



400 Series and 500 Series Heavy Duty 90° Angle Heads VERTICAL TURNING CENTRES

VTL

- Standard and Extended lengths
- 40ISO and 50ISO output heads
- All heads designed to automatically toolchange
- High Pressure Internal Coolant options available with outlet via body or full through tool coolant via drawbar
- Dedicated interfaces to suit requirements of machine RAM



INTERFACES AVAILABLE FOR THE FOLLOWING MACHINES

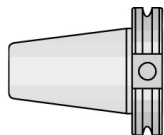
- Hankook VTC125E / 140E / 160E Series
- Hankook VTC 250E Series
- Doosan VTS 1620
- Massa VL Series
- Toshiba
- You-Ji

If you would like information relating to a specific machine
Or your machine is not listed, please contact us.

500 Series Heavy Duty 90° Angle Heads

500

- Standard and Extended lengths
- 50ISO output STD or special integral milling arbors or adapters available on request
- High Pressure Through Coolant options available
- Prep for dedicated machine cowl interface
- Tool clamping via manual M24 / 1" drawbar
- 360° adjustability
- Special output options available
- Maintenance free sealed design. Grease lubricated
- Specific models available for Vertical Turning Centres - See page



Available drive Tapers:

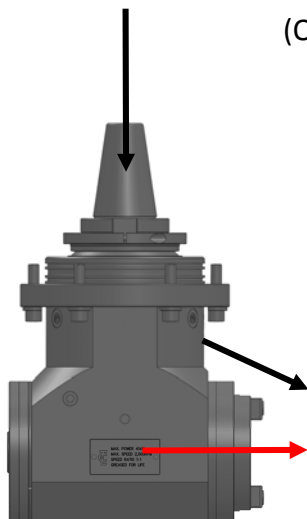
BT50

CAT50 (DIN / ANSI / SK)

HSK 100A

Special floating and face drivers to suit machine interface

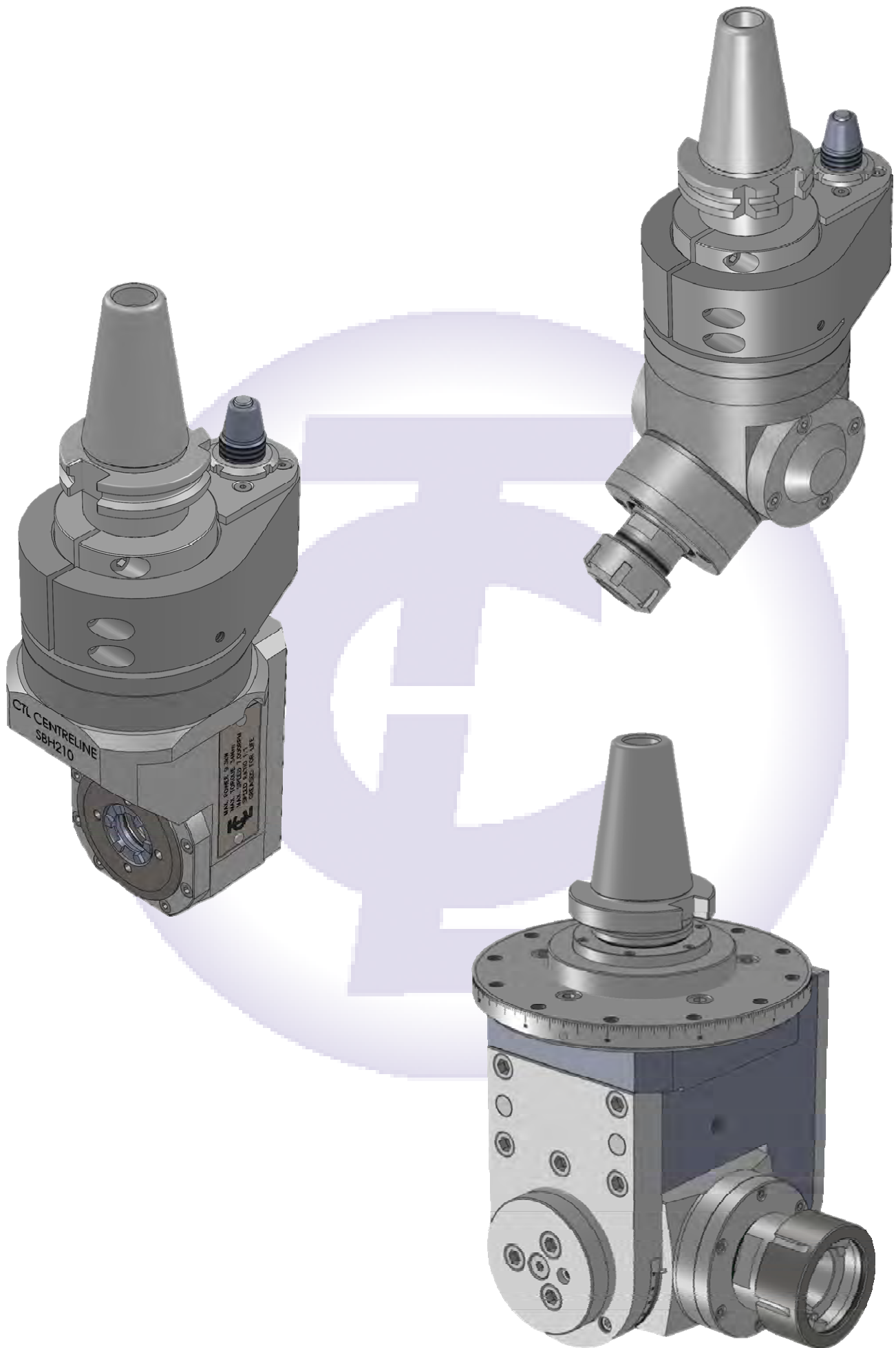
(Other options available on request)

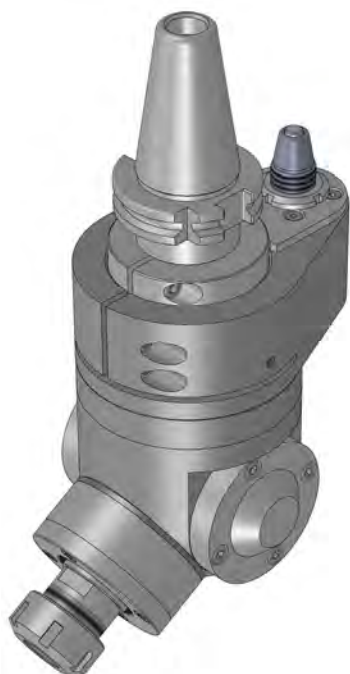


Internal Coolant Options:

A - In through Shank - Out through Body

B - In through Shank - Out through Spindle / Tool via through coolant drawbar









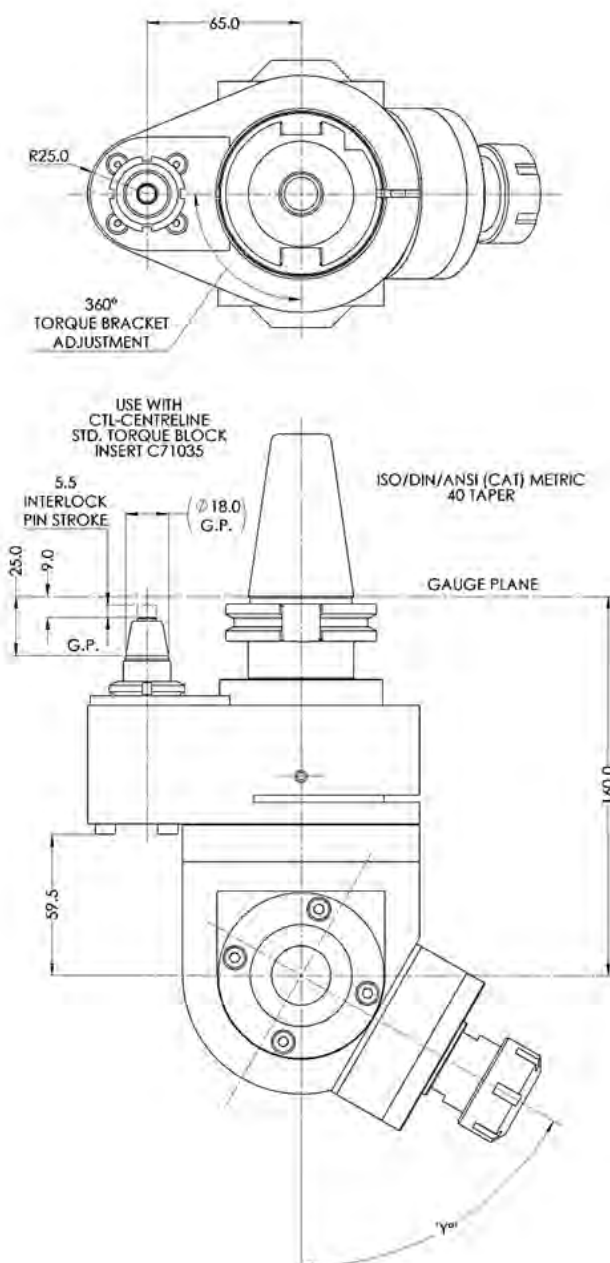
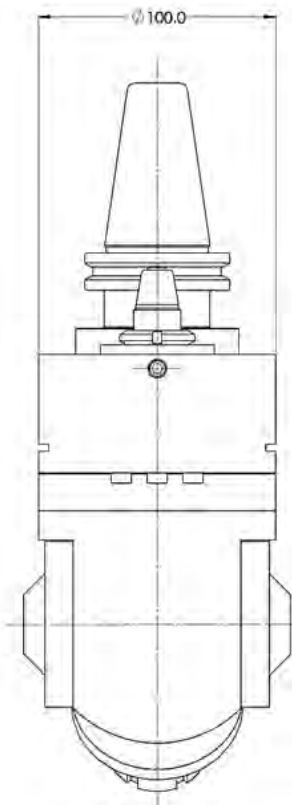


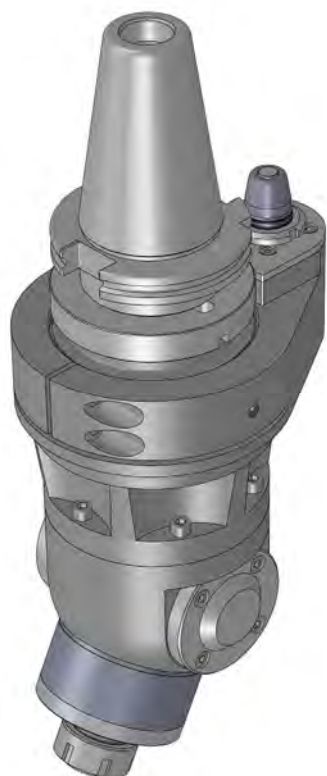
FAH160 Fixed Angle Head

FAH

Technical Data

	ER16 —10mm or ER25—16mm	
	Max. 3,500rpm Speed ratio 1 : 1	
	Max. @ 3,500rpm	2.9kW
	Max. @ 100rpm	15Nm
	(Without tools)	6.6kg
	Input Opposite to Output	









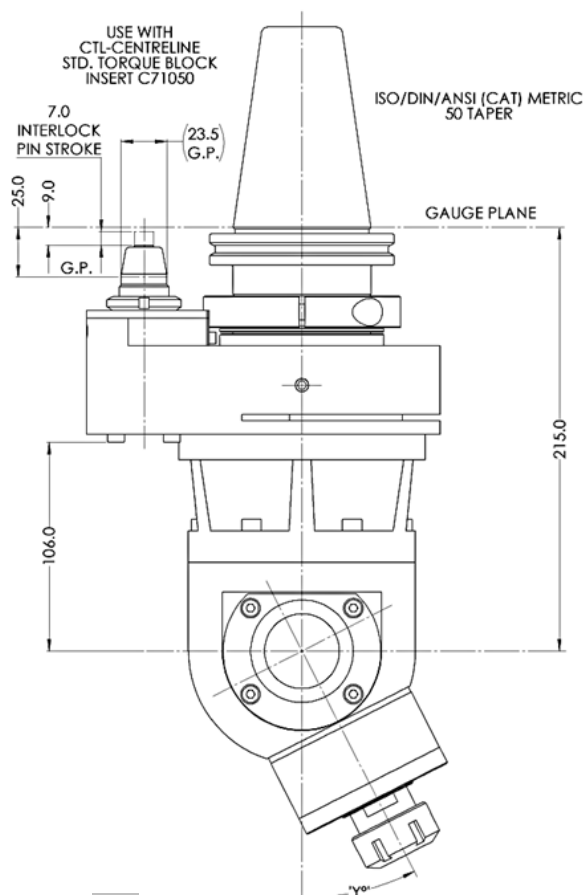
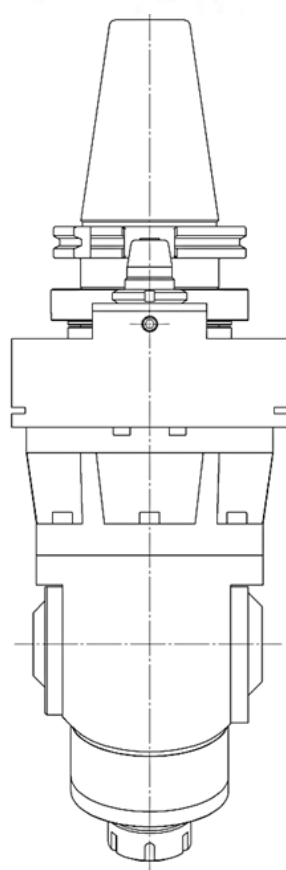
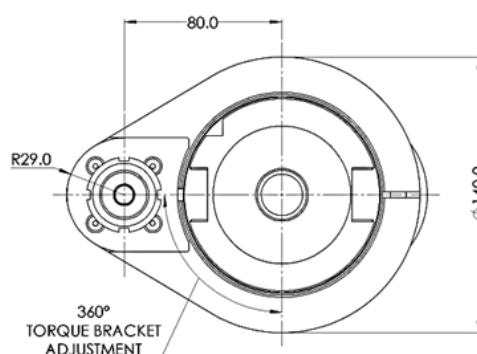
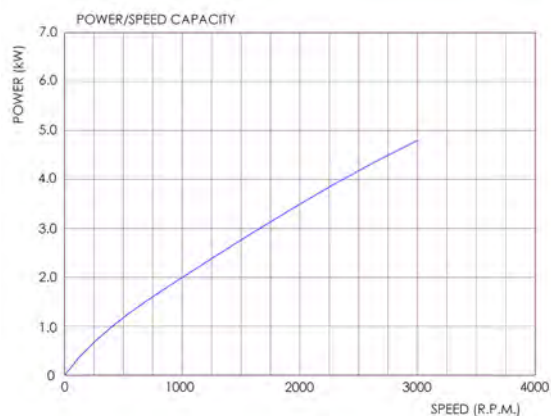


FAH225 Fixed Angle Head

FAH

Technical Data

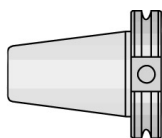
	ER25 — 16mm	
	Max. 3,500rpm Speed ratio 1 : 1	
	Max. @ 3,500rpm	5.3kW
	Max. @ 100rpm	23Nm
	(Without tools)	15.5kg
	Input Opposite to Output	



Fixed Angle Heads

FAH

- Manufactured to suit any angle from 0° to 80°
- 360° Adjustability
- High Pressure Through Coolant options available to order
- Auto Tool change capability—Refer to machine manual for details



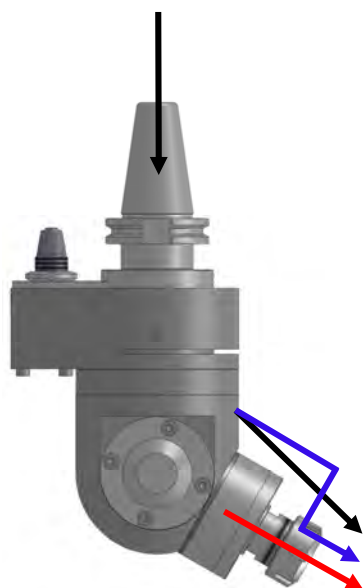
Available drive Tapers:

BT40 - BT50

CAT40 - CAT50 (DIN / ANSI / SK)

HSK63A, HSK80A, HSK 100A

(Other options available on request)

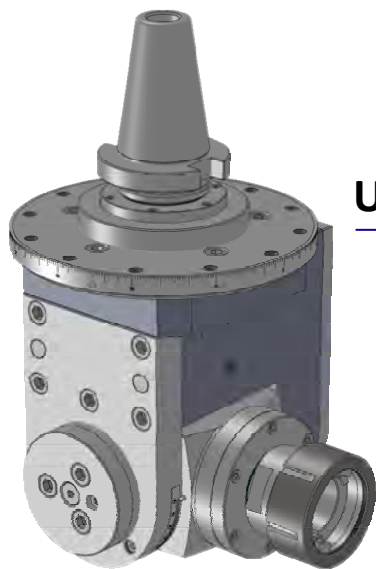


Internal Coolant Options:

A - In through Shank - Out through Body

B - In through Shank - Out through Spindle / Tool

C - In through Shank - out via Special Through Coolant Locknut



UAH250 Heavy Duty Universal Angle Head

UAH

Technical Data



ISO40 Steep Taper - Front Locknut



Max. 2,500rpm Speed ratio 1 : 1



Max. @ 2,500rpm 20kW



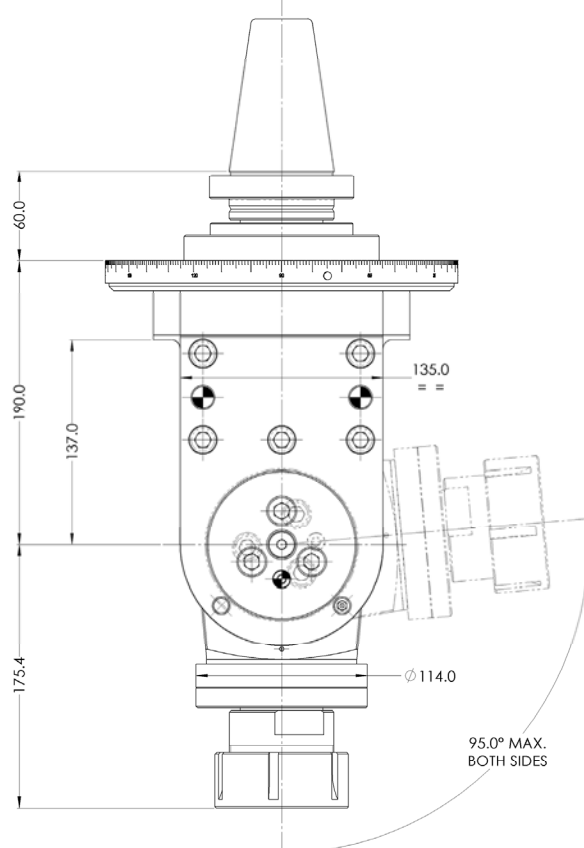
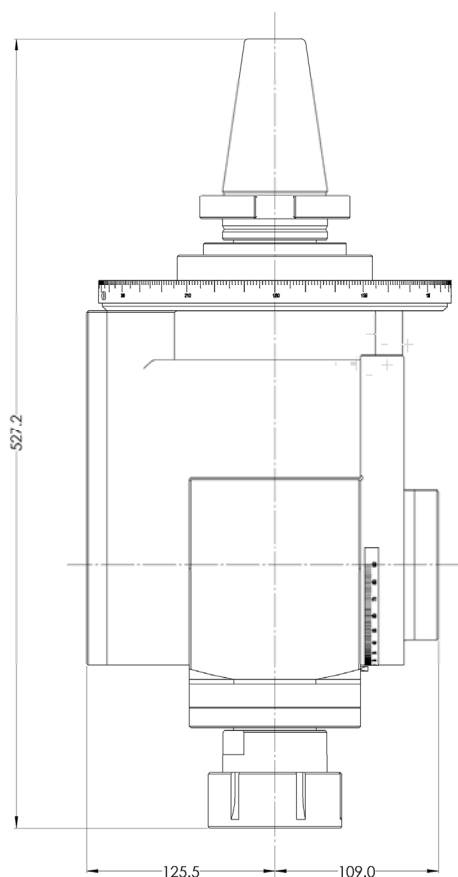
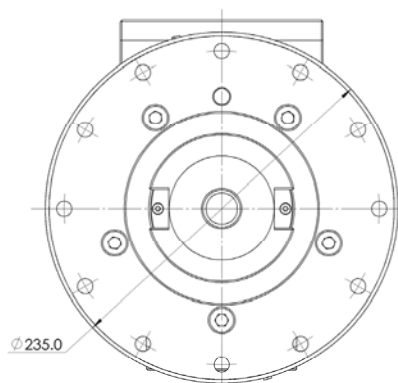
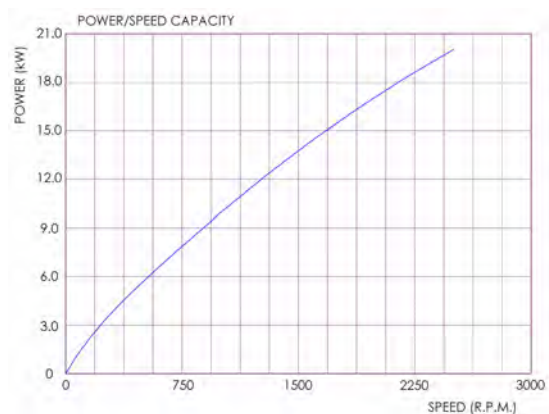
Max. @ 100rpm 140Nm



(Less interface or tools) 65kg



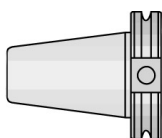
Input Opposite to Output



UAH250 Heavy Duty Universal Angle Head

UAH

- Output Adjustable from -95° to $+95^{\circ}$
- 360° Adjustability
- Heavy duty steel bodies or Lighter Aluminium version available
- Interface to suit machine spindle nose
- Machining Centre or VTL Compatible (refer to machine parameters)



Available drive Tapers:

BT50

CAT50 (DIN / ANSI / SK)

HSK80A, HSK 100A

(Other options available on request)



Available Output options:

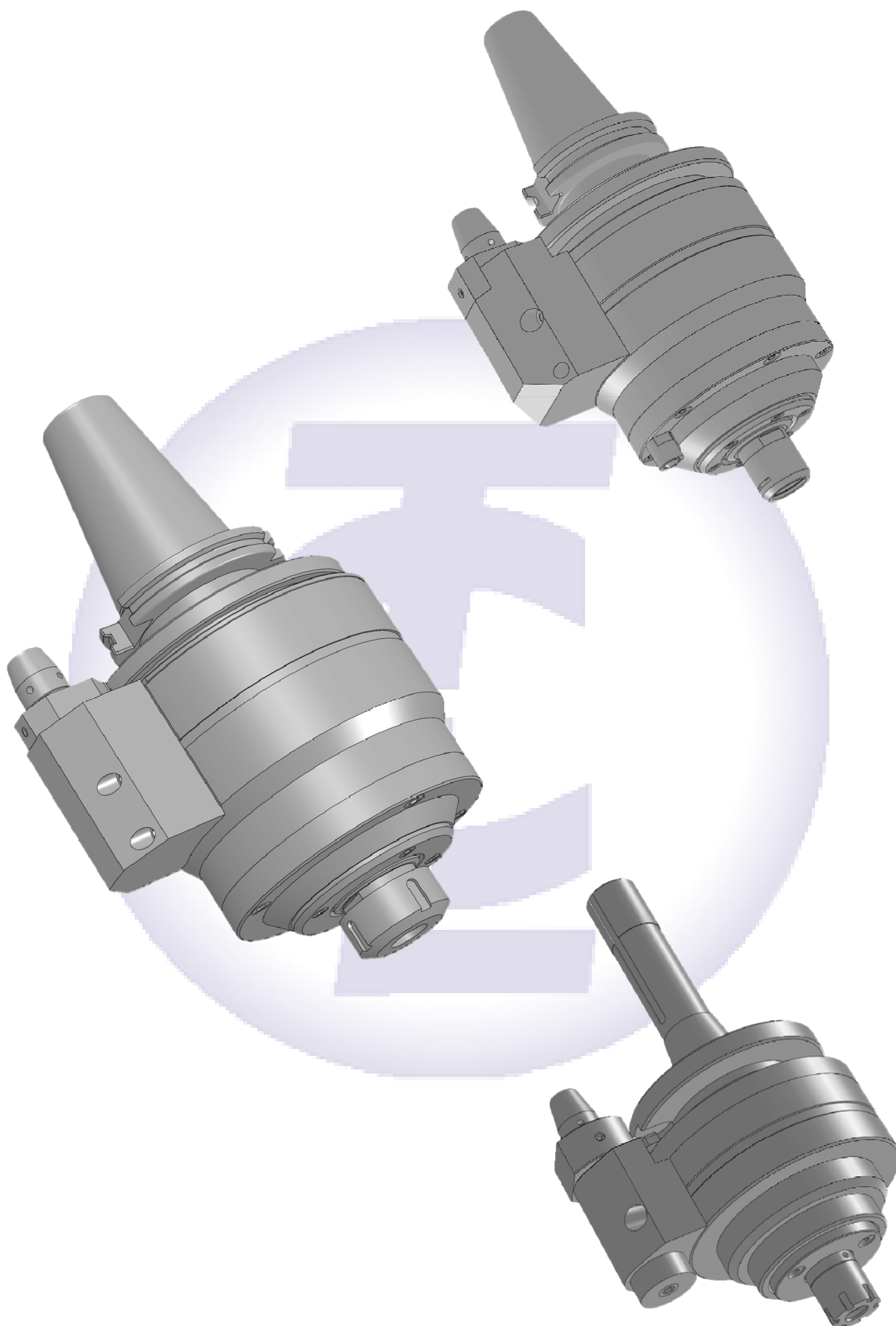
BT40 or CAT40 (DIN / ANSI / SK) via front clamping locknut

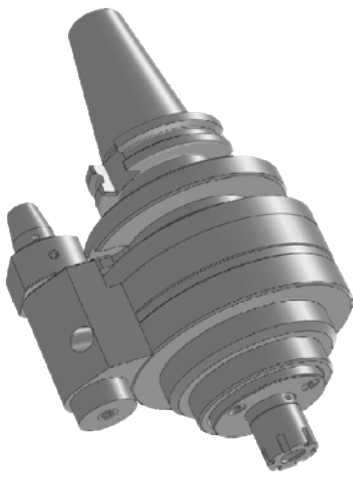
HSK63 C

Capto C5

Internal Coolant Options:

External Coolant only available on this head.





SPR410 Speed Increaser

SPR

Technical Data



ER16 —10mm



Max. 22,000rpm Speed ratio 4 : 1



Max. @ 16,000rpm 3kW



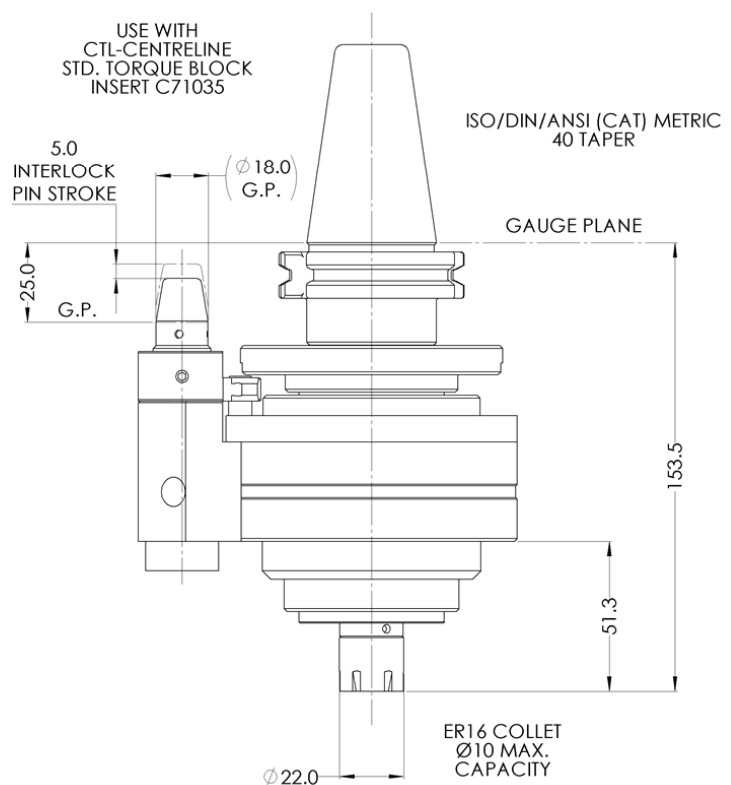
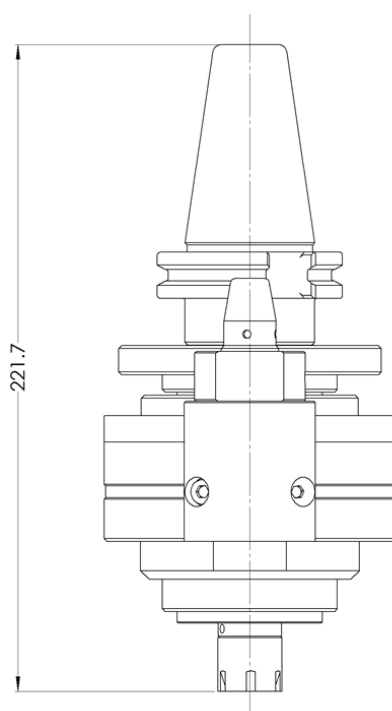
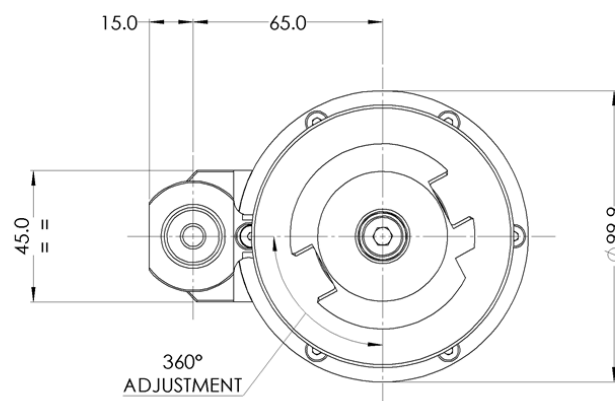
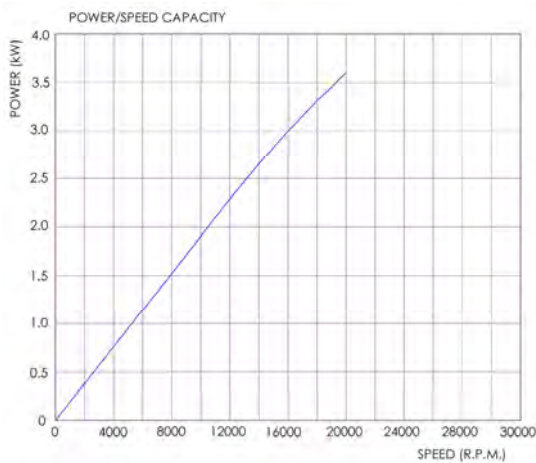
Max. @ 16,000rpm 1.8Nm

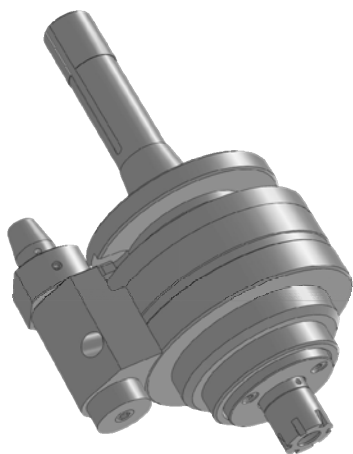


(Without tools) 5.2kg



Input = Output





SPR410 - R8 mount Speed Increaser

SPR

Technical Data



ER16 —10mm



Max. 22,000rpm Speed ratio 4 : 1



Max. @ 16,000rpm 3kW



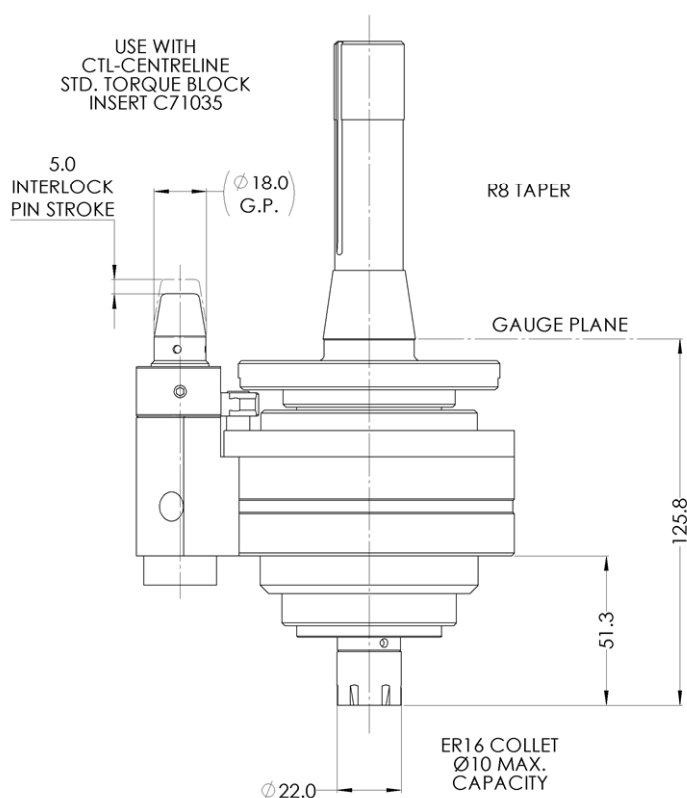
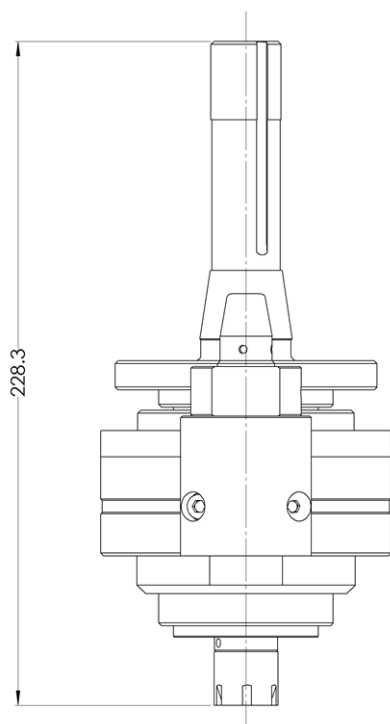
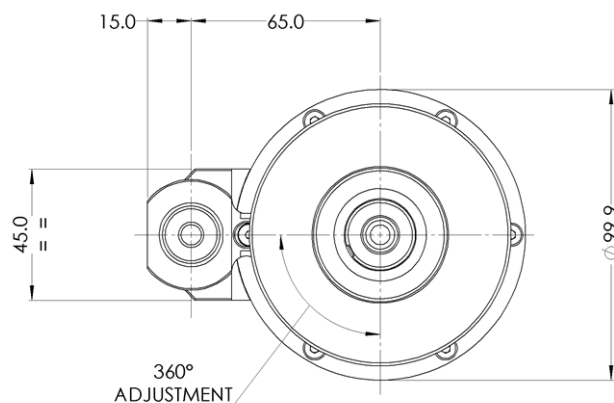
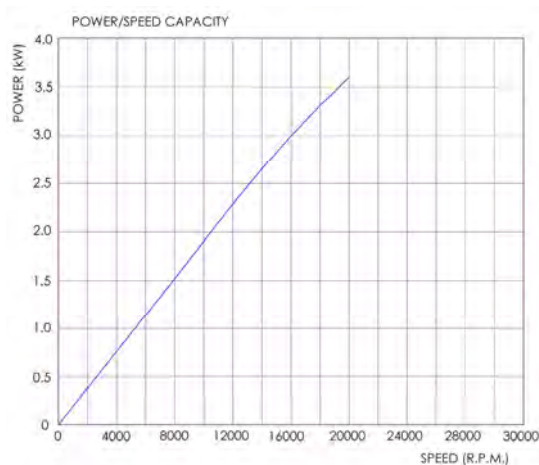
Max. @ 16,000rpm 1.8Nm

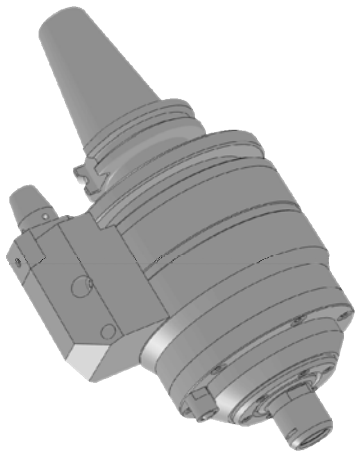


(Without tools) 5.2kg



Input = Output





SPR610 Speed Increaser

SPR

Technical Data



ER16 —10mm



Max. 25,000rpm Speed ratio 6 : 1



Max. @ 16,000rpm 3.1kW



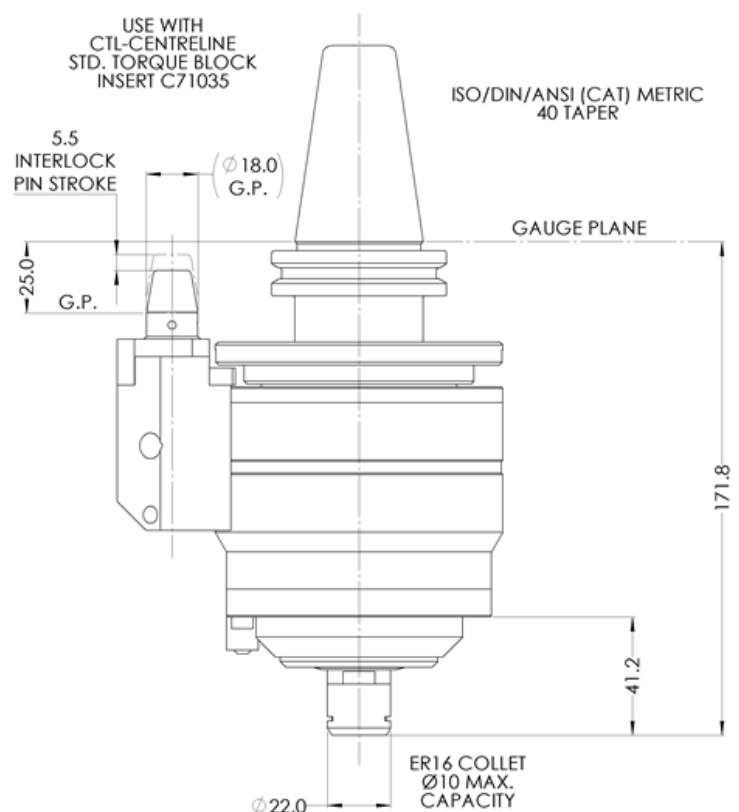
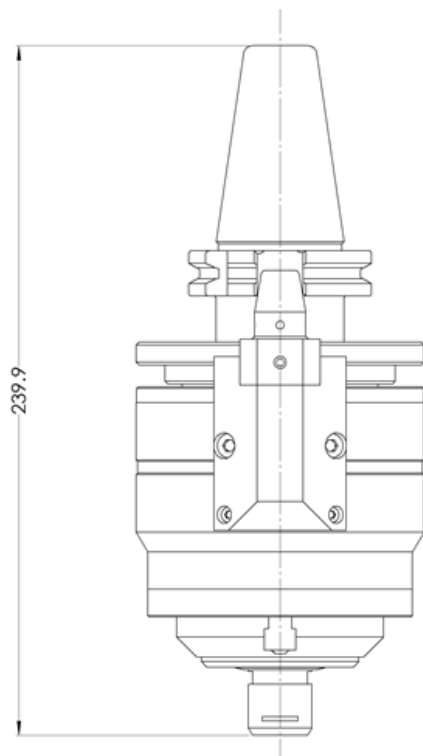
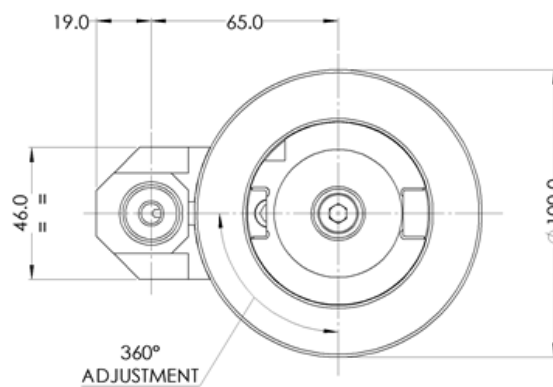
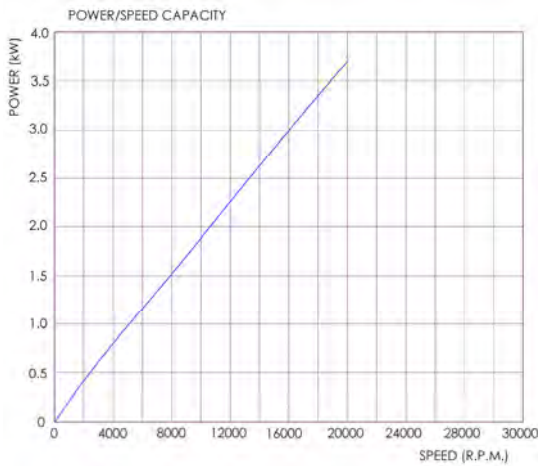
Max. @ 16,000rpm 1.85Nm

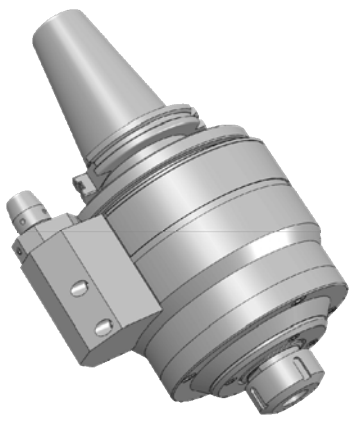


(Without tools) 5.2kg



Input = Output





SPR520 Speed Increaser

SPR

Technical Data



ER32 —20mm



Max. 15,000rpm Speed ratio 5 : 1



Max. @ 10,000rpm 8kW



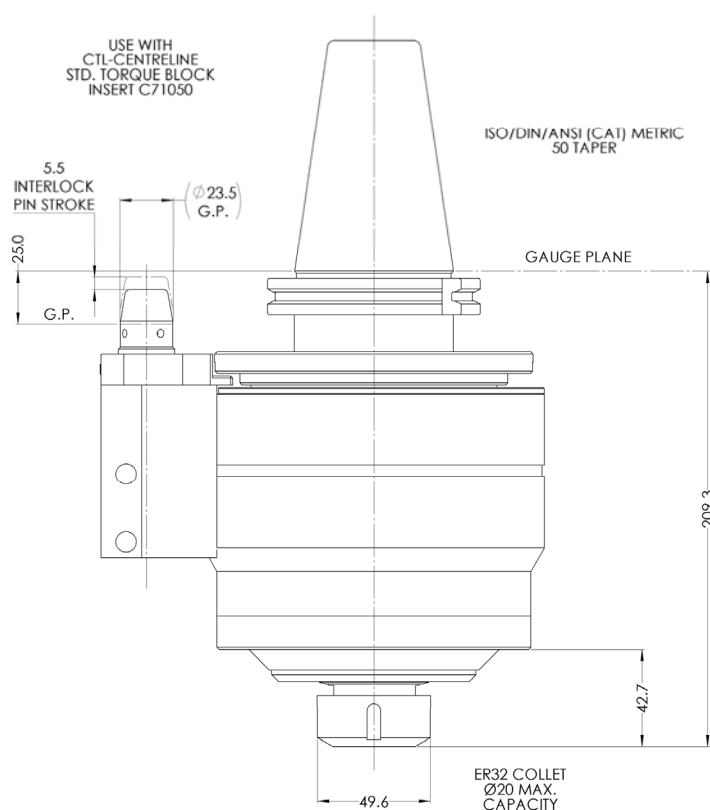
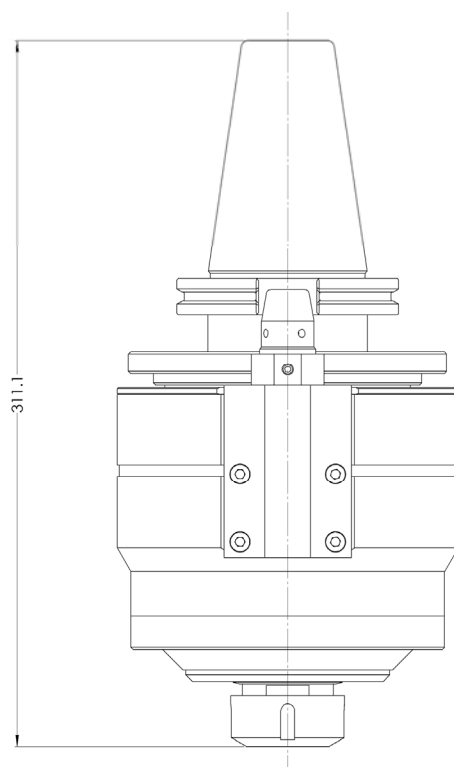
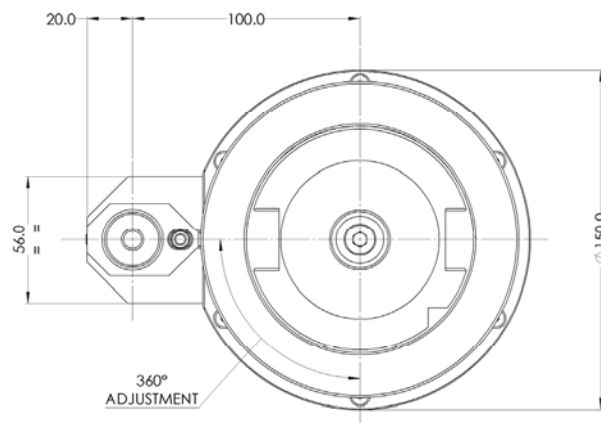
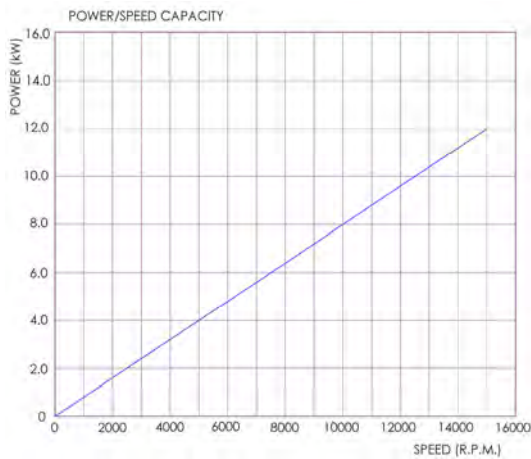
Max. @ 10,000rpm 7.6Nm



(Without tools) 16kg



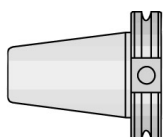
Input = Output



Speed Increaseers

SPR

- For use on both Manual and CNC machines
- Designed for High Speed Drilling and Light Milling and engraving operations
- Auto Tool change capability on CNC machines or Radial Stop Arm on Manual Toolchange machines
- Maintenance free sealed design. Grease lubricated



Available drive Tapers:

BT40 - BT50

CAT40 - CAT50 (DIN / ANSI / SK)

HSK63A, HSK80A, HSK 100A

R8 (Models SPR410 only)

(Other options available on request)

Internal Coolant Options:

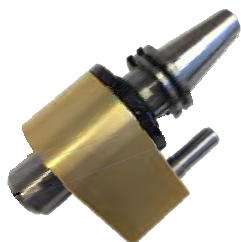
Internal Coolant not available with Centreline Speed Increaser range

Rotary Coolant Adaptors

RCA

- For use on both Manual and CNC machines
- Allows machines without through spindle coolant the ability to utilize modern through coolant cutting tools
- Auto Tool change capability on CNC machines or Manual Coolant Ring option for manual Toolchange machine
- Impeller type coolant feed holes reduce coolant pressure drop which normally occurs due to centrifugal forces during operation
- Recommended coolant pressure - (CNC) Min. 2 bar (30 p.s.i.) - Max. 10 bar (150 p.s.i.) Max. Speed as per datasheets. (Manual) Max. 40 bar (580p.s.i.) Max.

CNC Autochange Rotary Coolant Adaptors



Primarily available in 30/40/50 taper configurations in a range of taper standards (BT, DV, SK, CAT-ANSI). HSK also available.

By fitting a coolant feed block on the spindle nose, the adaptor can be tool changed and automatically pick up the coolant feed

End Mill and Collet Type front ends are available along with reduction sleeves to give added flexibility

Manual Rotary Coolant Adaptors

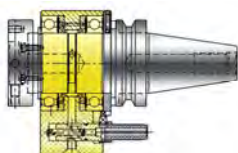


The main body is manually loaded into the machine spindle and the coolant inducer is prevented from rotating usually with a stop rod.

Coolant feed is manually connected usually with a quick change connector.

Available in a range of manual and CNC tapers

Special Rotary Coolant Adaptors / Inducer



A wide range of specials have been designed and manufactured. In the main the front toolholding is special.

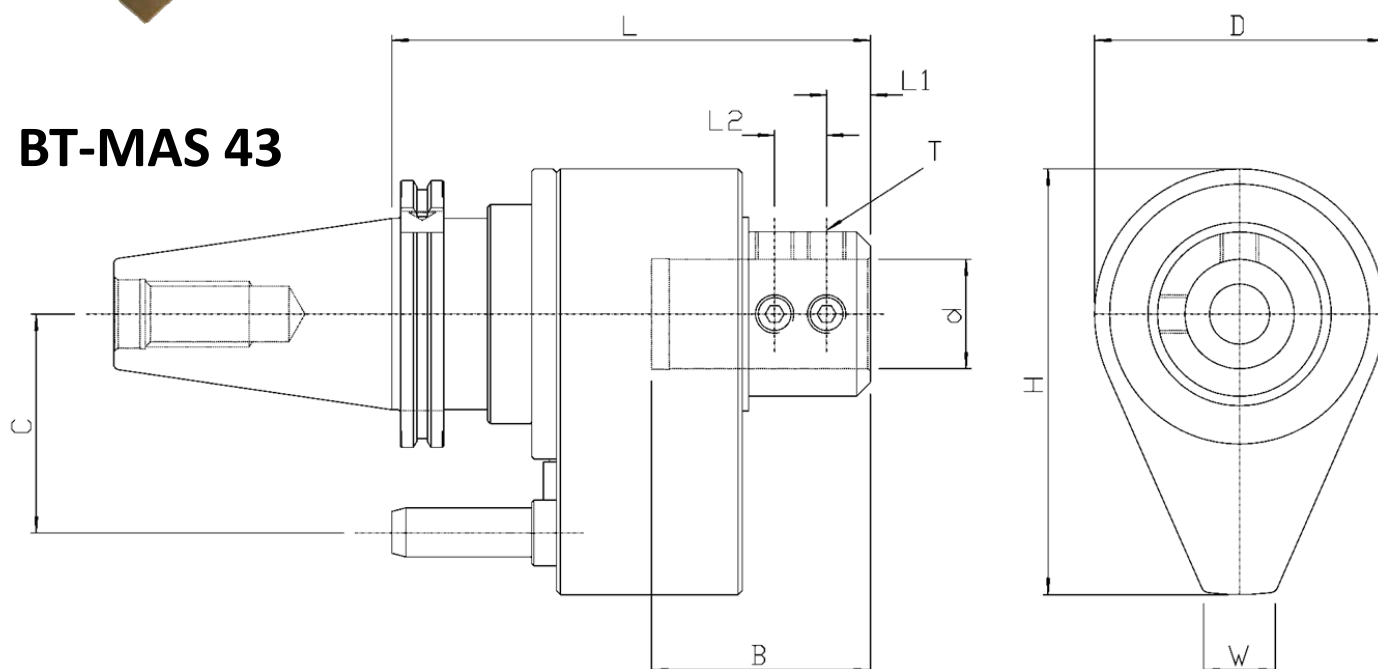
Popular types are - HSK female connector, Axial / Radial adjustable, special cutting tool connections



Rotary Coolant Adaptor - End Mill type

RCA

BT-MAS 43



Taper	Part Code	d	L	H	D	W	C	B	L1	L2	T	Weight	Max. RPM
40	BT40-R-EM16-150	16	150	130	86	26	65	50	13		M10	3.9	5800
	BT40-R-EM20-150	20	150	130	86	26	65	55	13		M10	3.9	5800
	BT40-R-EM25-150	25	150	130	86	26	65	65	15		M14	3.9	5800
	BT40-R-EM32-155	32	155	132.5	91	26	65	65	16		M14	4.6	5000
	BT40-R-EM40-170	40	170	140.5	106	30	65	80	16	19	M14	5.2	4000
50	BT50-R-EM16-155	16	155	148	91	26	80	50	13		M10	7.7	5000
	BT50-R-EM20-155	20	155	148	91	26	80	55	13		M10	7.7	5000
	BT50-R-EM25-160	25	160	148	91	26	80	65	15		M14	7.7	5000
	BT50-R-EM32-175	32	175	155.5	106	30	80	65	16		M14	8.7	4500
	BT50-R-EM40-175	40	175	155.5	106	30	80	80	16	19	M14	8.7	4500
	BT50-R-EM50-180	50	180	166.5	121	30	80	80	16	19	M14	9.5	4000

For added flexibility see the range of 40mm & 32mm Reduction Sleeves

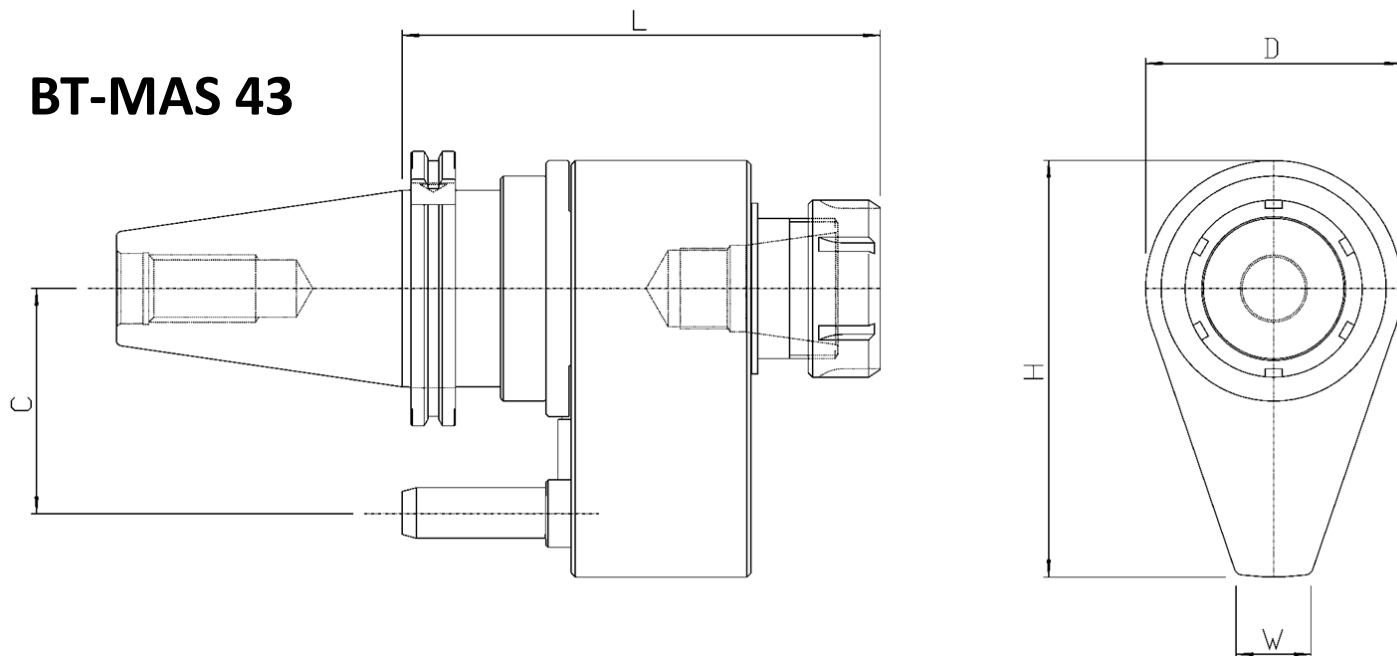
Other tapers available on request



Rotary Coolant Adaptor - Collet Chuck type

RCA

BT-MAS 43



Taper	Part Code	d	L	H	D	W	C	Weight	Max. RPM
40	BT40-R-ER32-160	3 - 20	160	130	86	26	65	3.9	5000
	BT40-R-ER40-160	3 - 26	160	132.5	91	26	65	4.6	5000
50	BT50-R-ER32-160	3 - 20	160	148	91	26	80	7.7	5000
	BT50-R-ER40-185	3 - 26	185	155.5	106	30	80	8.7	4500

NOTE:

- Minimum cutter diameter is 16mm on Collet Chuck units. For smaller cutter sizes consult with our technical department
- ER Collet Chucks are supplied with a Sealing Disc type Locknut. This enables the use of Sealed Collets or STD Collets with a Sealing Disc
- DA and TG Collet types available on request

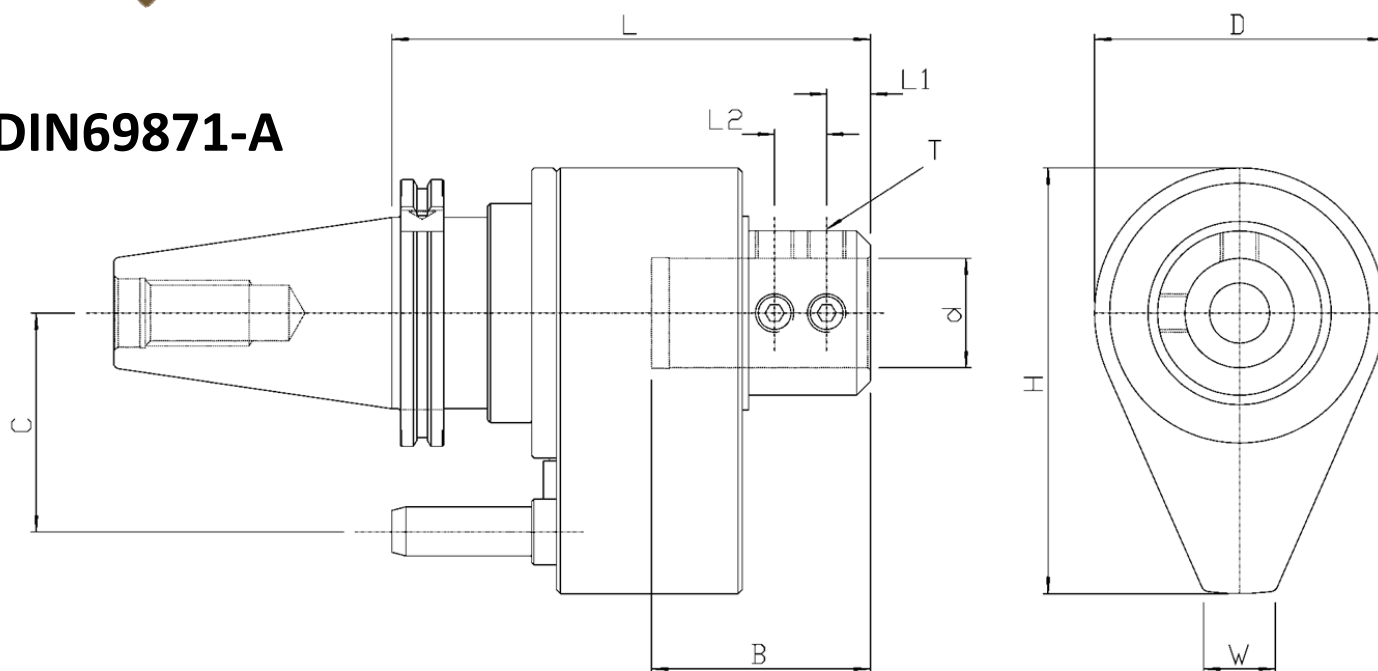
Other tapers available on request



Rotary Coolant Adaptor - End Mill type

RCA

DIN69871-A



Taper	Part Code	d	L	H	D	W	C	B	L1	L2	T	Weight	Max. RPM
40	DC40-R-EM16-150	16	150	130	86	26	65	50	13		M10	3.9	5800
	DC40-R-EM20-150	20	150	130	86	26	65	55	13		M10	3.9	5800
	DC40-R-EM25-150	25	150	130	86	26	65	65	15		M14	3.9	5800
	DC40-R-EM32-155	32	155	132.5	91	26	65	65	16		M14	4.6	5000
	DC40-R-EM40-170	40	170	140.5	106	30	65	80	16	19	M14	5.2	4000
50	DC50-R-EM16-155	16	155	148	91	26	80	50	13		M10	7.7	5000
	DC50-R-EM20-155	20	155	148	91	26	80	55	13		M10	7.7	5000
	DC50-R-EM25-160	25	160	148	91	26	80	65	15		M14	7.7	5000
	DC50-R-EM32-175	32	175	155.5	106	30	80	65	16		M14	8.7	4500
	DC50-R-EM40-175	40	175	155.5	106	30	80	80	16	19	M14	8.7	4500
	DC50-R-EM50-180	50	180	166.5	121	30	80	80	16	19	M14	9.5	4000

For added flexibility see the range of 40mm & 32mm Reduction Sleeves

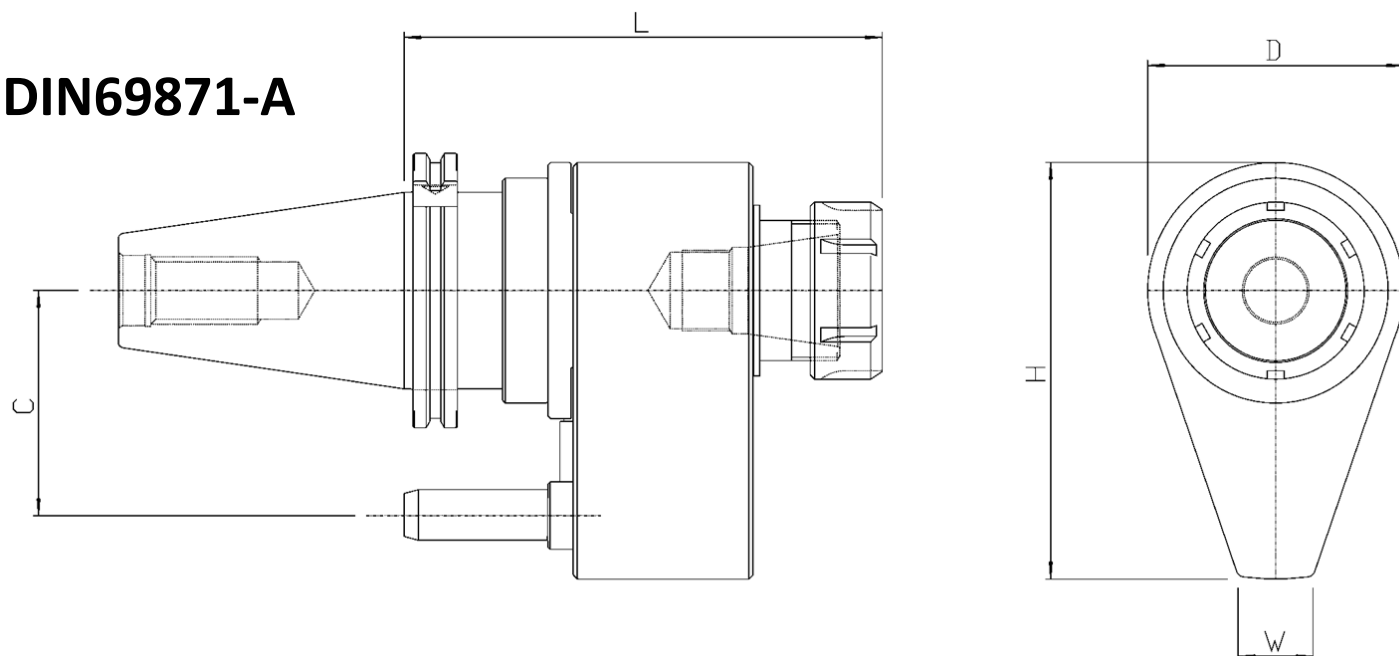
Other tapers available on request



Rotary Coolant Adaptor - Collet Chuck type

RCA

DIN69871-A



Taper	Part Code	d	L	H	D	W	C	Weight	Max. RPM
40	DC40-R-ER32-160	3 - 20	160	130	86	26	65	3.9	5000
	DC40-R-ER40-160	3 - 26	160	132.5	91	26	65	4.6	5000
50	DC50-R-ER32-160	3 - 20	160	148	91	26	80	7.7	5000
	DC50-R-ER40-185	3 - 26	185	155.5	106	30	80	8.7	4500

NOTE:

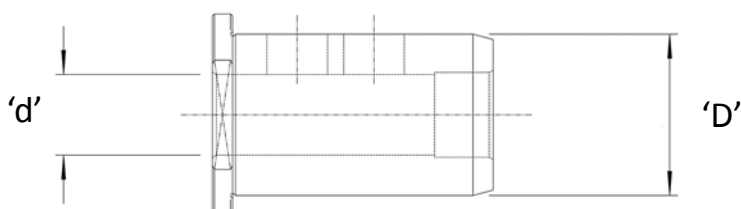
- Minimum cutter diameter is 16mm on Collet Chuck units. For smaller cutter sizes consult with our technical department
- ER Collet Chucks are supplied with a Sealing Disc type Locknut. This enables the use of Sealed Collets or STD Collets with a Sealing Disc
- DA and TG Collet types available on request

Other tapers available on request



R C A - Reduction Bushes

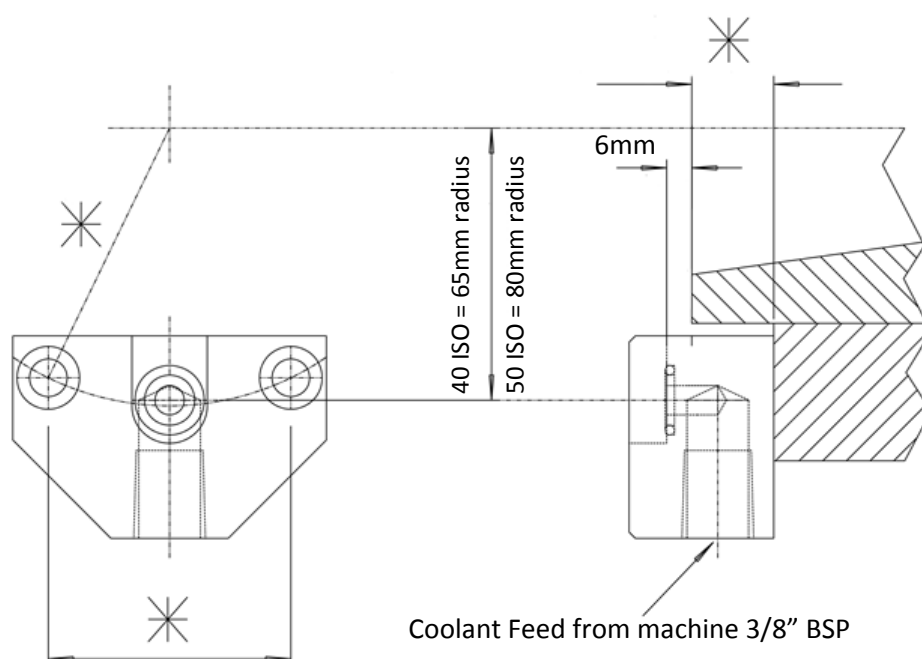
RCA



Part Code	D	d
RCA-SS320-RS16	32mm	16mm
RCA-SS320-RS20	32mm	20mm
RCA-SS320-RS25	32mm	25mm
RCA-SS400-RS16	40mm	16mm
RCA-SS400-RS20	40mm	20mm
RCA-SS400-RS25	40mm	25mm
RCA-SS400-RS32	40mm	32mm

R C A - Coolant Feed Block

Dimensions marked * determined by machine.
Customer to advise.



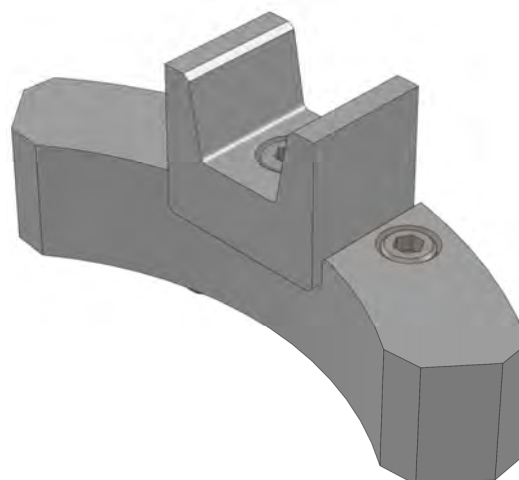
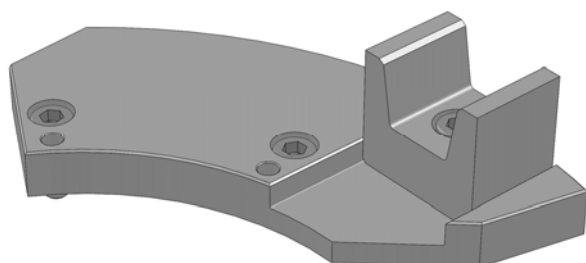
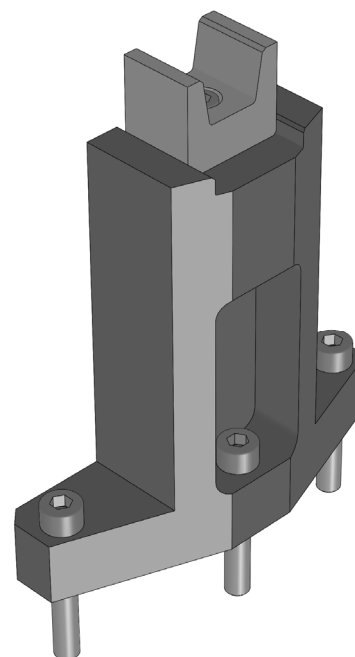
NOTE. Coolant Feed Block not supplied with Rotary Coolant Adaptor. Can be quoted on receipt of relevant machine details

Machine Interface Options

INTERFACE

Torque / Stop / Anti-Rotation Blocks

- Required for any CNC Auto Tool Change machine
- All Centreline Angle Heads and Speed Increaseers utilise a tapered pin location for optimum rigidity
- A Hardened and ground Vee Insert is used where possible
- Standard pin centres on 65mm, 80mm, 100mm or 110mm depending on machine configuration
- Blocks manufactured to suit each machine spindle
- Optional Hardened Insert supplied with details for customer to manufacture his own base block



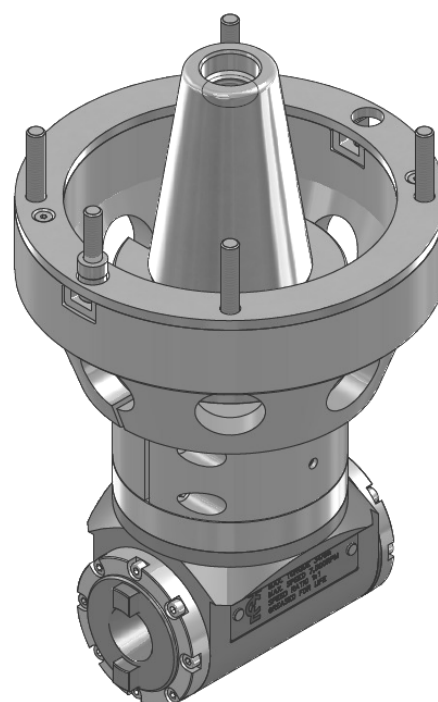
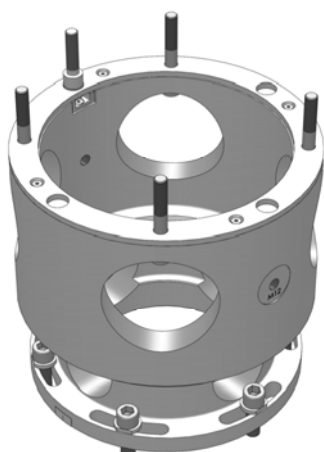
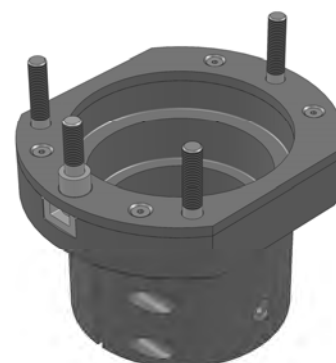
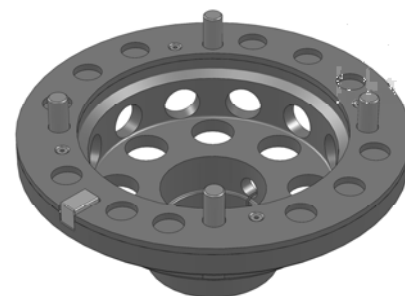
Full spindle nose details must be supplied in order to make a suitable block along with toolchange parameters for the machine tool

Machine Interface Options

INTERFACE

Cowl Mounting

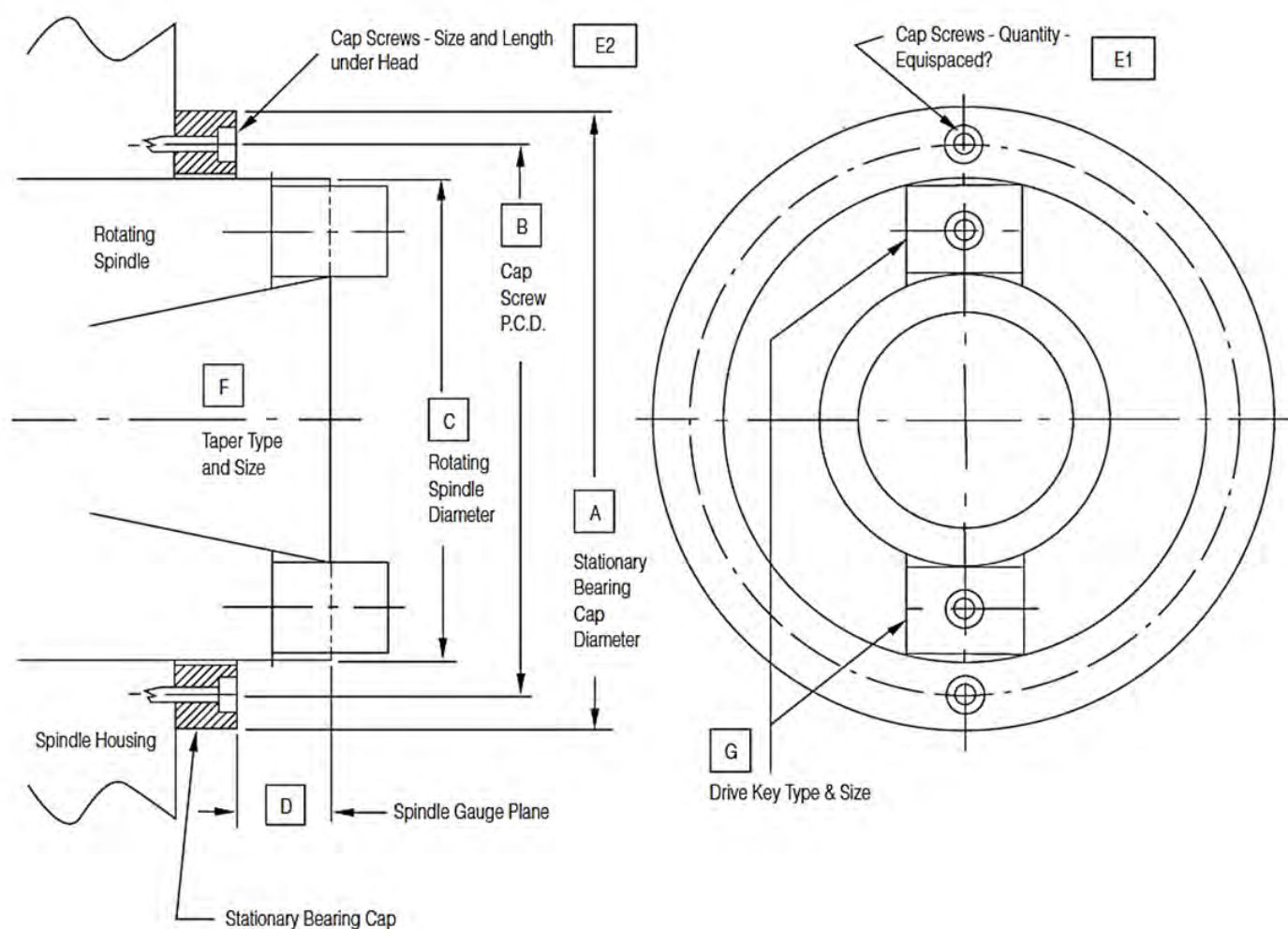
- Required for any manual or CNC machine where the Angle Head is overweight for the machine tool changer but still within the power capability
- All Centreline Angle Heads can be cowl mounted to provide best rigidity during machining process
- Each Cowl Assembly is custom built to exactly match the spindle nose of the chosen machine
- A Hardened Master Locator Pin is supplied to be permanently fitted to the machine spindle nose and a matching Location Insert in the Cowl ensures repeatability each time the head is loaded
- Single position, 2 x 180° or 4 x 90° location positions are supplied as standard
- Machine Table mounted Cradles can be supplied in conjunction with cowl mounted heads for convenient or automatic pick up.



Full spindle nose details must be supplied in order to make a suitable block along with toolchange parameters for the machine tool

Machine Interface - Spindle Nose Details

INTERFACE



PLEASE COMPLETE INFORMATION BELOW		
Machine:	Make	
	Model	
Spindle Bearing Cap Diameter (Stationary)	A	
Cap Screw Pitch Circle Diameter	B	
Rotating Spindle Diameter	C	
Spindle Gauge Plane to Bearing Cap Distance	D	
Bearing Cap Screws - Quantity / Equi-spaced ?	E1	
Bearing Cap Screws - Size and Length under Head	E2	
Spindle Taper Type (BT/CAT/ANSI/HSK...) and Size	F	
Drive key Type and Size	G	
Any Existing Tapped Holes in Spindle Bearing Cap?	If YES, Please provide dimensions and Picture	

Full spindle nose details must be supplied in order to make a suitable block along with toolchange parameters for the machine tool



Special Application Angle Heads

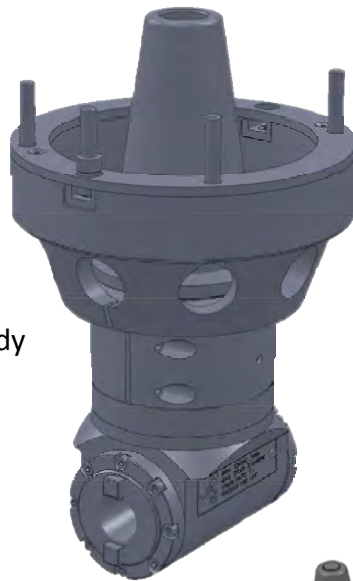
To compliment its comprehensive Standard product Range, CTL Centreline also offers a full design and manufacture service for special application Driven heads.

One of the strengths of the Engineering team at CTL centreline is the ability to work closely with its customers to provide solutions to the challenging machining problems highlighted in modern component design. it is our aim, rather than provide a 'from the catalogue' solution, but to give our customers the best possible solution to provide stable and long lasting tooling solutions.

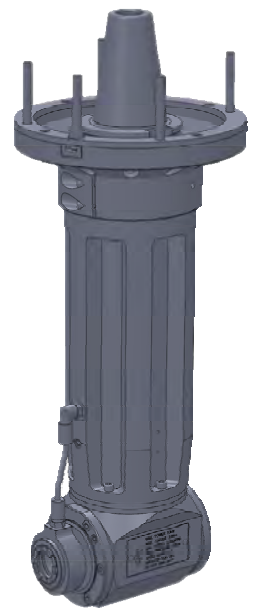
All units are design and manufactured in house at Coventry and are fully supported with service and spares as required.

Standard Angle Head Modifications or Variants

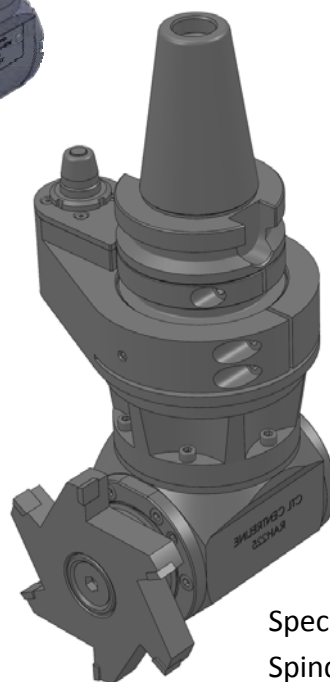
Special Steel
contoured body



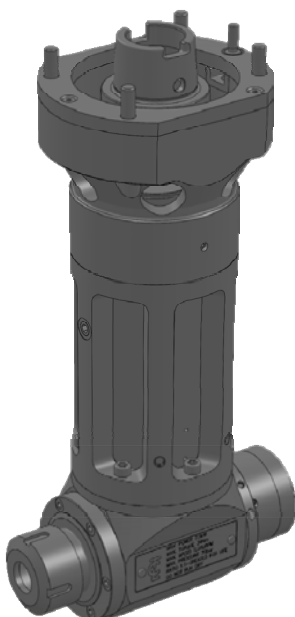
Special extended body and
special coolant feed locknut



Special Integral Output
Spindle to suit special
cutter



Full High Pressure Through Tool
Coolant and Cowl Interface

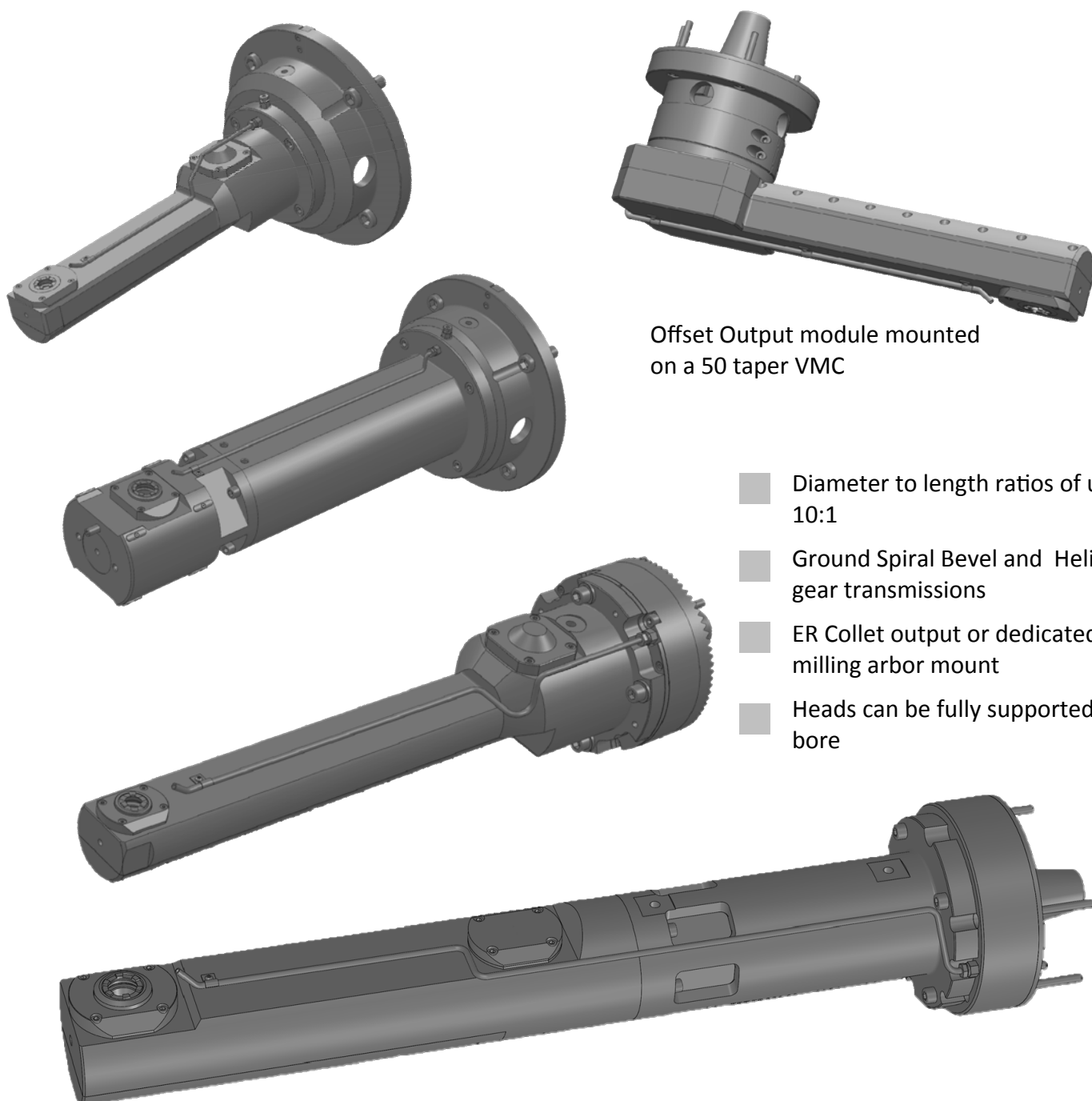


Special Application Angle Heads

Extended Internal Milling Heads

An increasing requirement for internal milling and keyway milling has given birth to a growing range of special extended milling heads, especially in the Oil and Gas sectors.

Centreline now has many milling and drilling head solutions in the field with the ability to access bore sizes as small as 40mm and reaches of over 1 metre can be accommodated with fully supported cuts. Heads are normally mounted on Horizontal Borers or millturn machines, but both Vertical and Horizontal drive solutions are available.



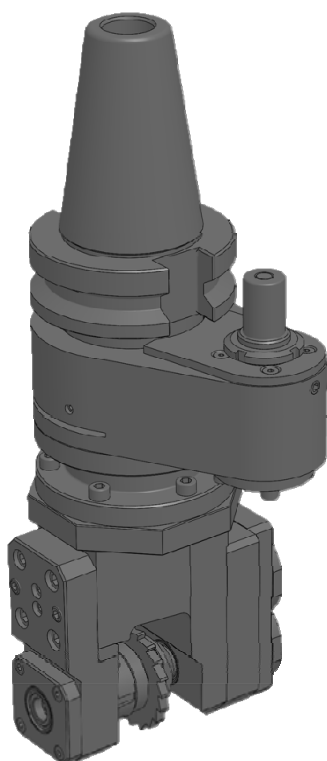
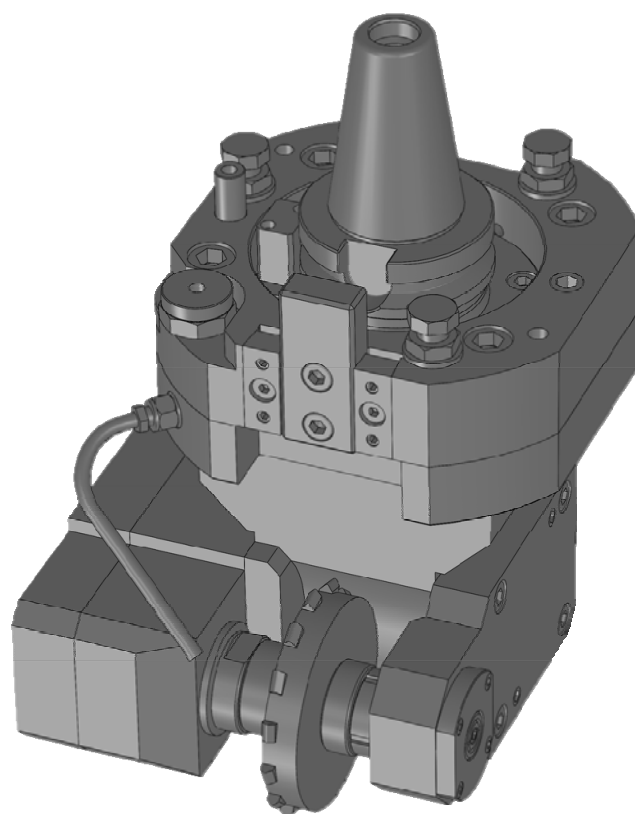
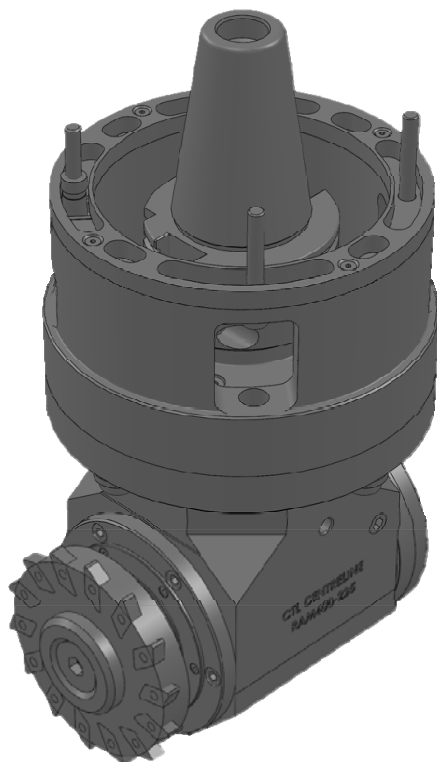
Offset Output module mounted on a 50 taper VMC

- Diameter to length ratios of up to 10:1
- Ground Spiral Bevel and Helical gear transmissions
- ER Collet output or dedicated milling arbor mount
- Heads can be fully supported in bore

Special Milling head - 124mm body diameter with an 800mm unsupported reach and 20mm cutter capacity.

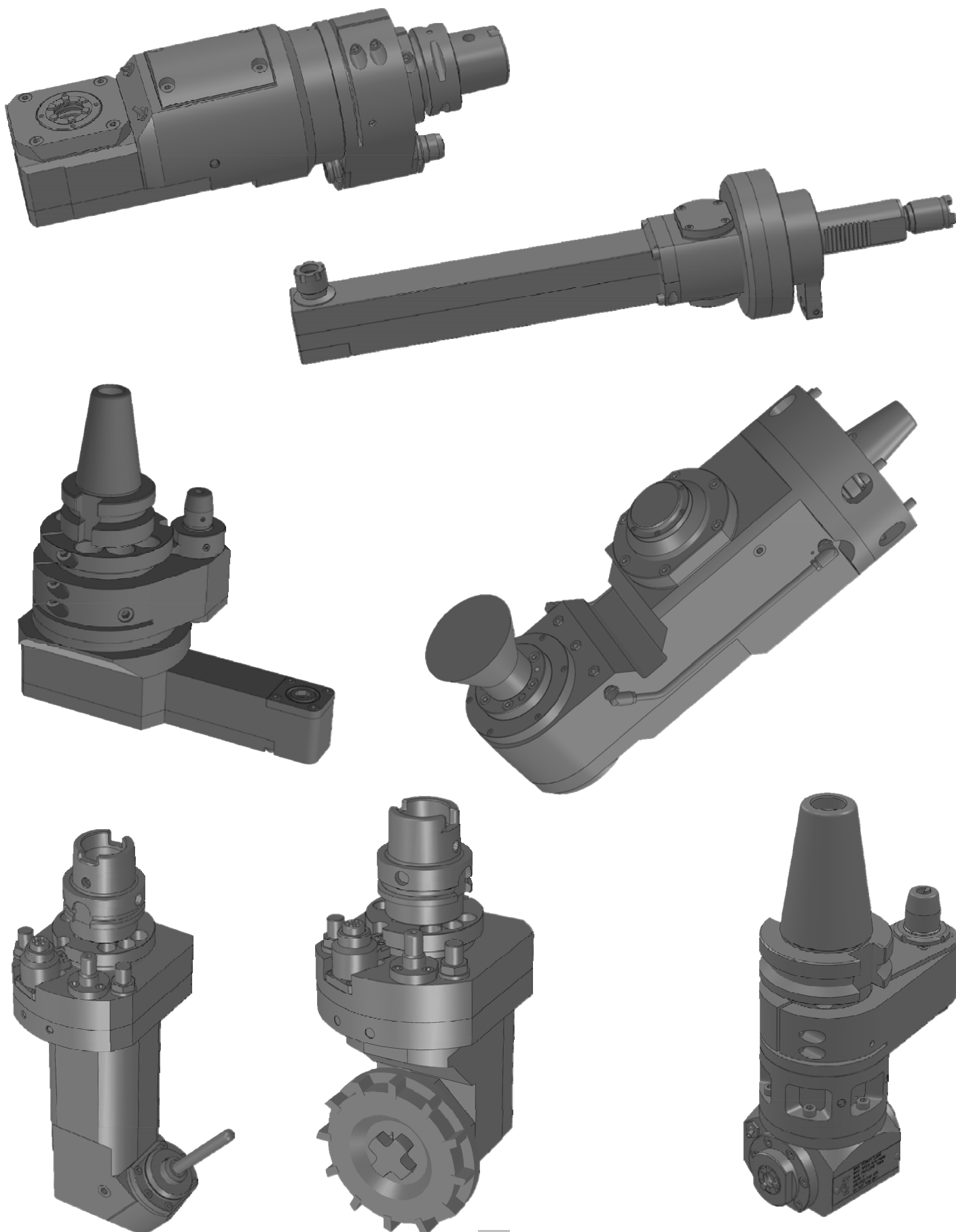
Slitting Saw, Rack Milling and Gear Hobbing Heads

The introduction of gear hobbing and rack and spline cutting on standard Machining Centres and Vertical Lathes has brought about the need to hold special form cutters with additional support to give a rigid platform to produce high quality internal and external gear teeth, rack teeth and spline forms.

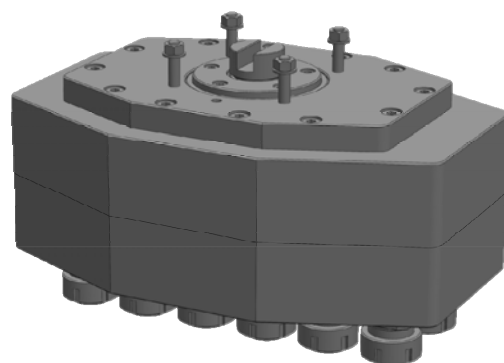
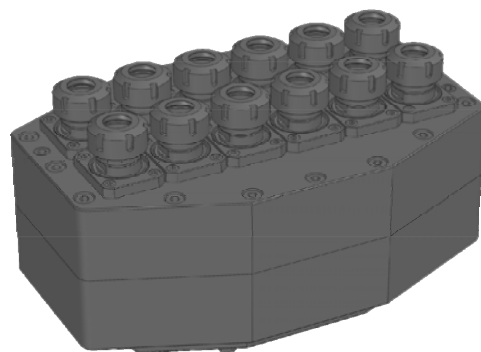
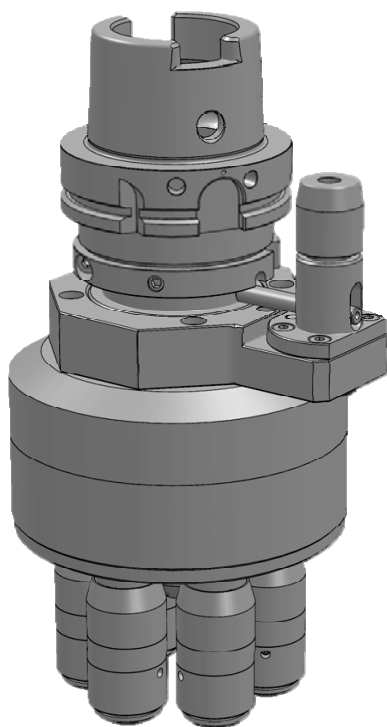
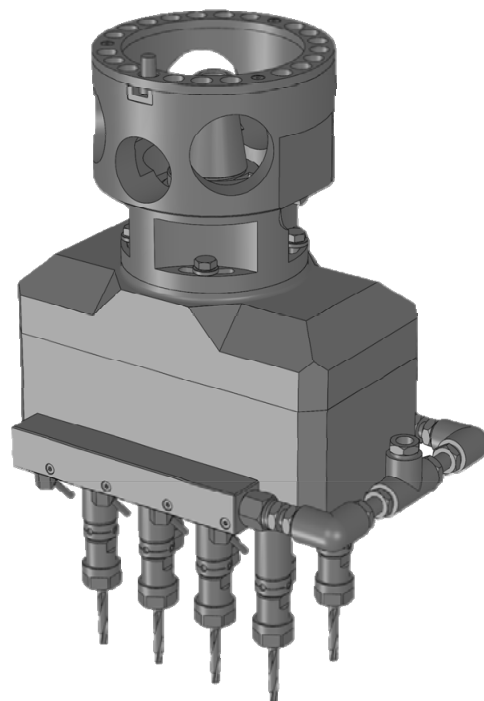
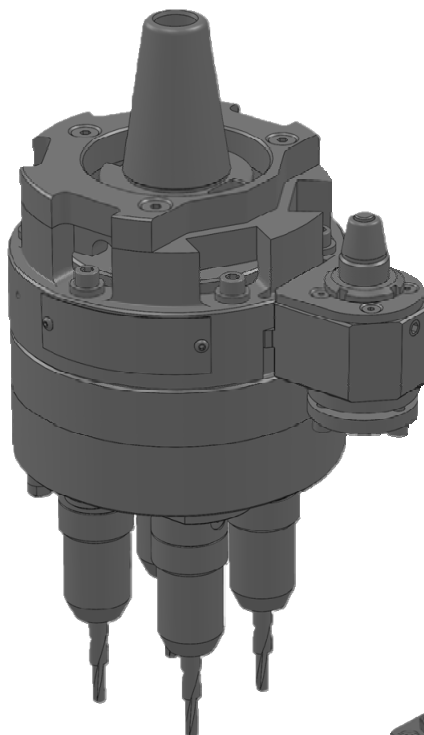
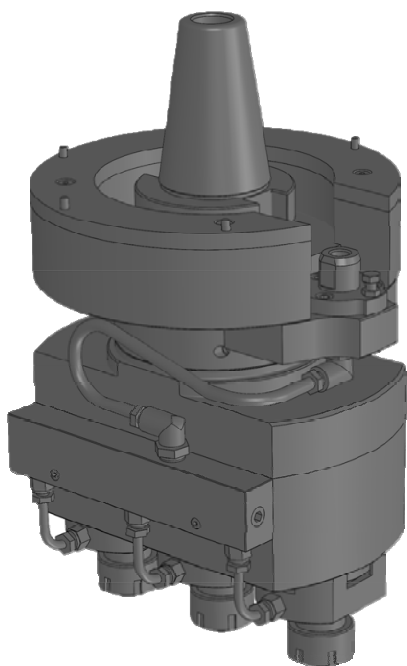


- Fully supported cutter mounting arbors with removable out-rigger for easy cutter replacement
- Qualified cutter positioning to ensure tooth form on centre-line for VTL applications
- 360° adjustment to allow helix angles to be accommodated.
- Speed reduction transmissions ensure high torque at low speeds

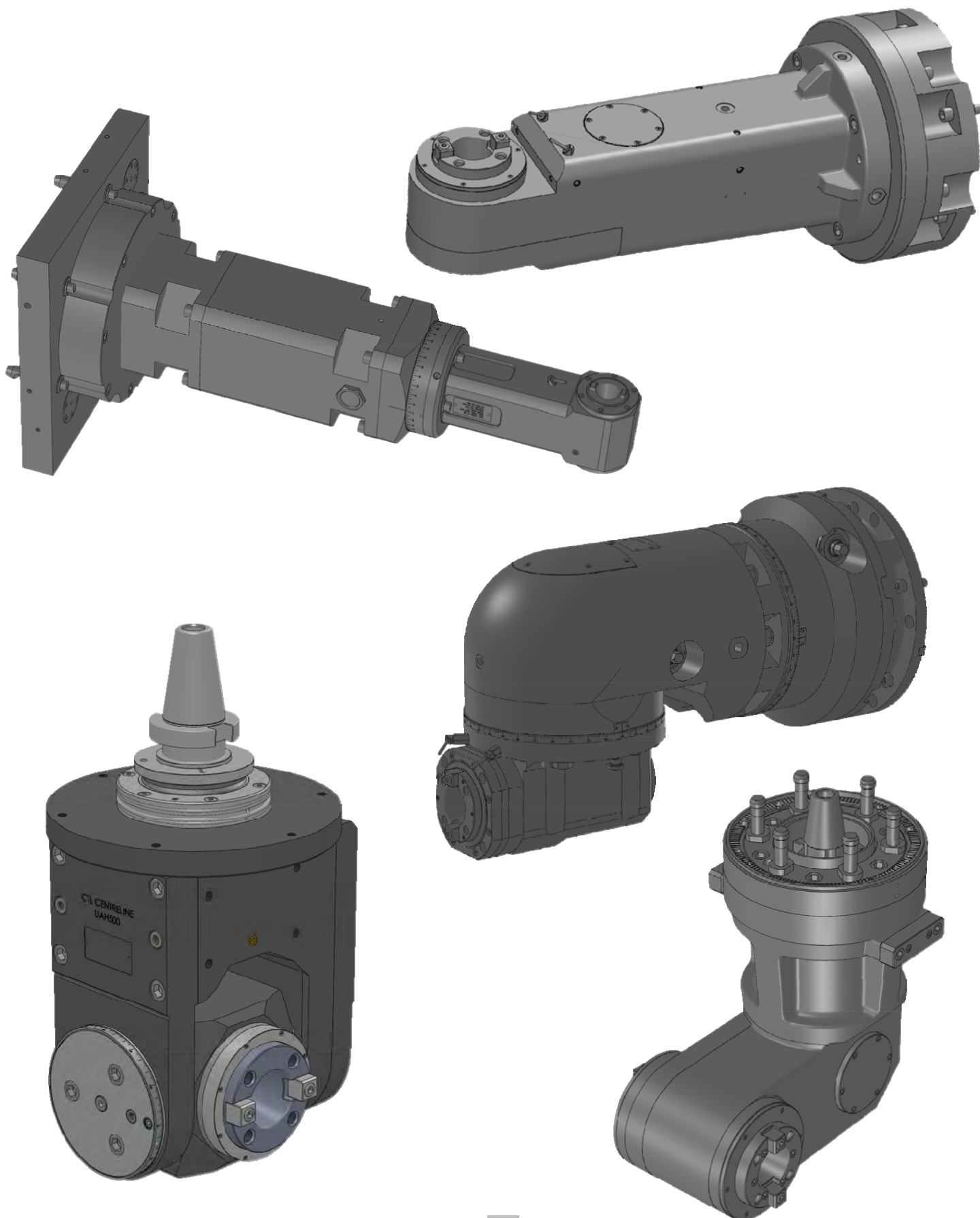
Bespoke solutions to suit complex machining requirements



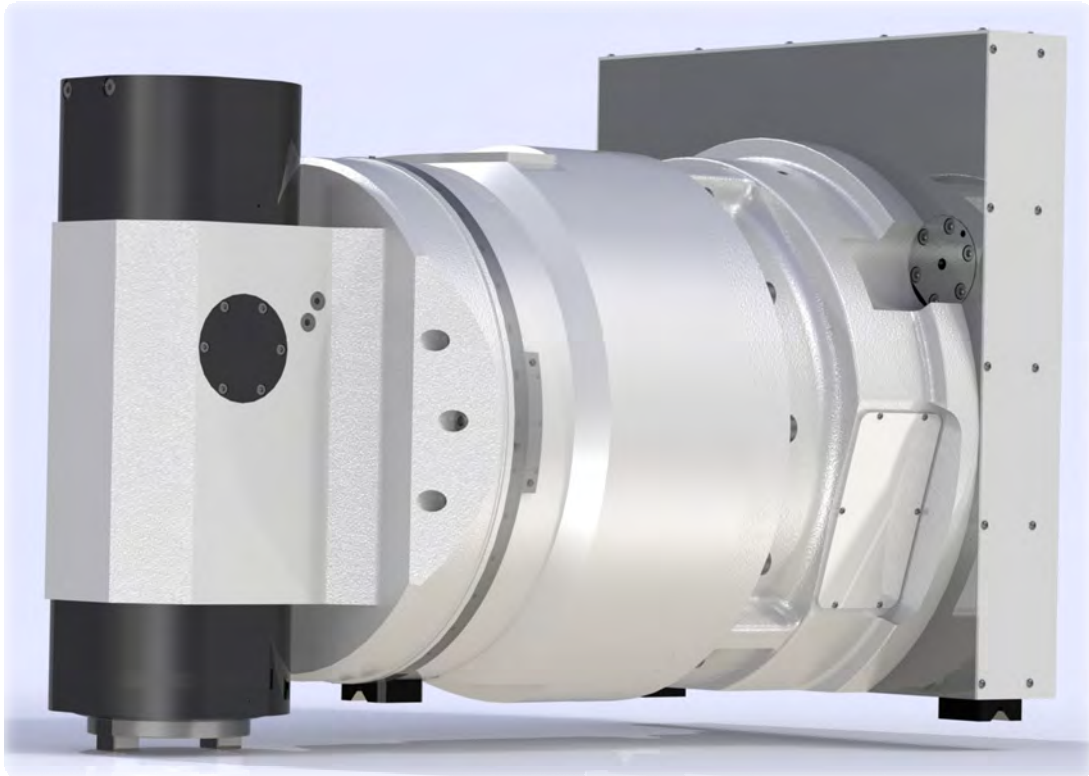
Multi Spindle Drilling and Tapping Heads



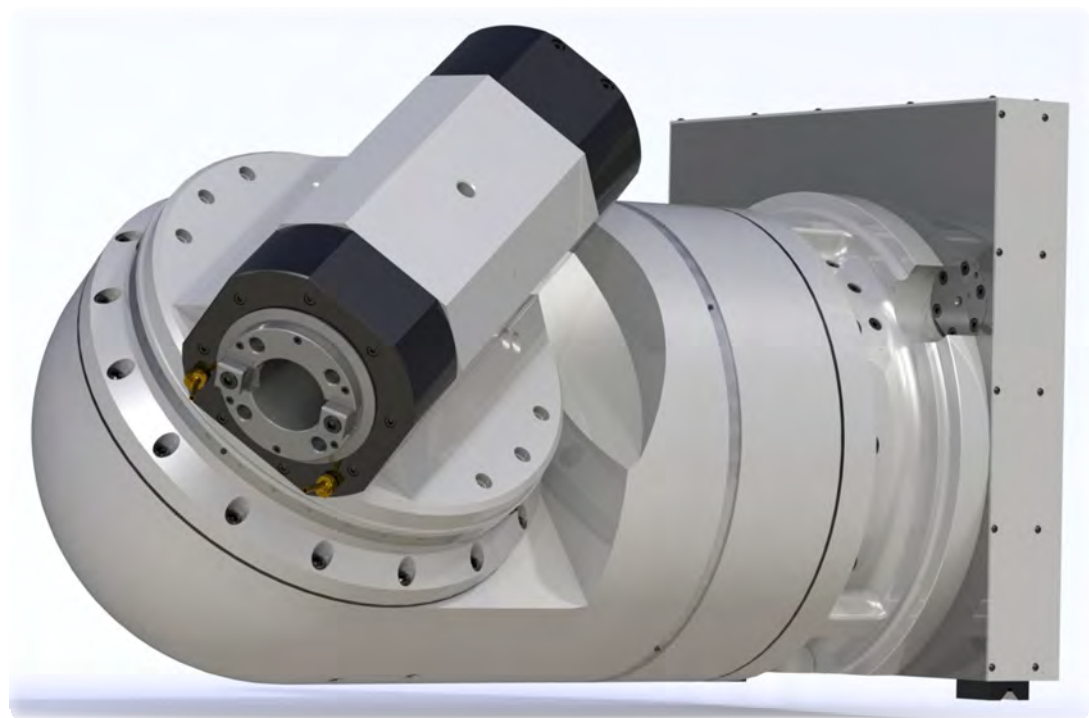
Heavy Duty heads



CNC Positioning Heads



90 Degree Attachment



Orthogonal Universal Attachment



Toolholders for Machining Centres



MAS403 BT
(JIS B 6339)

A wide range of tool clamping is available whether you are looking for flexibility with precision collet chucks or for high precision with heat shrink and hydraulic systems, we can offer a package to suit.



DV (SK) DIN69871



HSK Form A+C, B+D, C, E, HSK-T



Polygon Form to ISO 26623-1

Toolholders for Turning Machines



VDI Static Tooling. (DIN 69880, VDI 3425)

A complete range of precision tooling systems to suit VDI (DIN 69880-1, VDI3425) type machines with shank sizes VDI 20, 25, 30, 40, 50, 60. The chucks are complemented by a full range of accessories such as collets, spanners, bushes etc.



Driven Tool Holders for CNC Turning Centres.

A complete range of precision standard and bespoke tooling systems to suit the majority of driven toolholder type machines.

The range covers axial and radial type toolholders for both face and peripheral mount type turrets. As well as the standard DIN couplings more specialised interfaces for machines such as Mori Seiki, Mazak, Okuma and Haas are also available. A range of driven toolholders with a quick change front end tooling system is also available.

Toolholders for Multi - Function Machines



These types of machines are usually defined by having both a rotating chuck and a revolving milling spindle, thus enabling both turning and milling on the same machine. Hence a combination of both standard rotating tools and static turning tools are required.



Coventry Toolholders supply a range of tooling to suit both static and rotating spindle type machines. The common taper systems are EPS ISO 26623-1 (Capto), HSK form T, KM and 40/50 taper BT / DIN69871 systems.

Toolholders for Manual Machines



DIN 2080

A complete range of precision standard and bespoke tooling systems to suit DIN 2080 30, 40 and 50 taper machine spindles. Available in through coolant AD form. The range covers Collet Chucks, End Mill (Weldon) Adapters, Shell Mill Adapters, Morse Taper Adapters, Precision Milling Chucks, Taper Reduction Chucks, Greenstock Blanks, Tapping Chucks, Test Bars and Drill Chucks



QC - Quickchange

These toolholders are ideally suited to machines fitted with the Quick Change locknut. This allows clamping and unclamping of the QC toolholder in a 1/4 turn of the locknut.

This provides a rigid quick change system for 30, 40 and 50 taper machines.



Easy-Change Toolholding System

A tooling system for manual machines that enables quick tool changeover at the spindle nose. An Easy Change adapter is fitted to the machine spindle and is left in position. Toolholders can be changed over in seconds thus speeding up the typical spot, drill and tap sequence of machining.

A range of spindle adapters are available for most manual machine spindles including R8, Morse Taper, ISO30 and 40 Steep Tapers and Straight Shank.



R8 Tooling

A complete range of precision standard and bespoke tooling systems to suit R8 taper machine spindles. The range covers Collet Chucks, End Mill (Weldon) Adapters, Shell Mill Adapters, Morse Taper Adapters, Greenstock Blanks, Tapping Chucks, Fly Cutters and Drill Chucks.

Other Products

Toolholders for Vertical Turning Machines



Block Type Toolholders

Block type toolholders available in a range of gauge lengths and square shank tool sizes to suit Hankook, You-Ji, Toshiba, Massa and Yu-Shine machines.



Boring Bar type Toolholders

Available in varying gauge lengths to suit square shank tooling and cylindrical boring bars.



Modular type Toolholders

Enables the clamping of modular tooling systems. This allows flexibility in cutting tool choice and reduces set up time. Capto, KM, HSK and many other modular type systems are available.

Precision Boring Systems



Boring Systems - Micron Adjustment

The Precision Micron Adjustable Boring System has a modular type back end enabling connection to most machine tool spindles and opening up a wide range of boring options. Boring heads are available to cover the majority of applications and allow adjustment to .002mm (.00008")



Modular Extension / Toolholder System

A face and spigot system whereby that enables a range of boring head systems to be adapted to the machine spindle. Clamping is by tapered screws that provides an accurate and rigid system. Precision Boring Tools can be mounted direct or through a range of extensions and reducers. The modular system can also be utilised for general machining using the range of ER, End Mill, Shell Mill and Drill chucks modular toolholders.

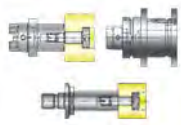


Boring heads general

This design of boring head has the capability to bore, face, counter bore, spotface and outside diameter turn due to its multiple locations for the cutting tool. The standard heads cover a range of bore diameters from 12.5mm to 546mm depending on configuration.

Other Products

Special Products



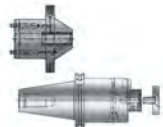
Grinding machine Arbors

A range of precision Grinding arbors for use on internal / external grinding machines.



Long Arbors for Side and Face Milling Cutters

Designed in conjunction with the cutter manufacture a suite of 50 taper milling arbors to hold large side and face milling tools. Cutter position was critical requiring precision ground spacers



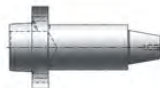
Special Hydraulic Toolholding and workholding

Hydraulic tooling for both Toolholding and Workholding applications



Long Extended Toolholders

Extended toolholders for long reach 300mm plus



Custom Design Toolholders

Toolholders manufactured to customers specific requirements.

Accessories and Tool Storage

Straight Shanks / Tool Extensions / Adapters

Precision Reduction Sleeves and Bushes

Collet Systems - ER, DA, TG etc.

Tapping Collet Systems - ER, Quick change

Pullstuds (Retention Knobs)

General Accessories

Tightening Fixtures

Heat Shrink Units

Tool Storage Systems

Edge Finders and Tool Height Setting

Locknuts

Spares

COVENTRY ENGINEERING GROUP

**Units 7, 9 & 11 Paragon way
Bayton Road Industrial Estate
Exhall
Coventry
CV7 9QS**

T: +44 (0) 24 7664 5999

E: info@coveng.co.uk

F: +44 (0) 24 7664 4081

www.coveng.co.uk

Represented by: