HydroForce™ HT
ADVANCES 2015

WIDIA™

HydroForce™ • HT Hydraulic Chuck High Torque

- First choice solution for rotating applications.
- HydroForce HT gives you an unparalleled combination of accuracy and clamping force.
- HydroForce HT requires only two clamping sizes for all of your tooling applications.

HydroForce

Compact and Stable Design
- Shorter projection length and thicker front wall cross section result in higher rigidity. This allows higher cutting parameters and better surface quality.

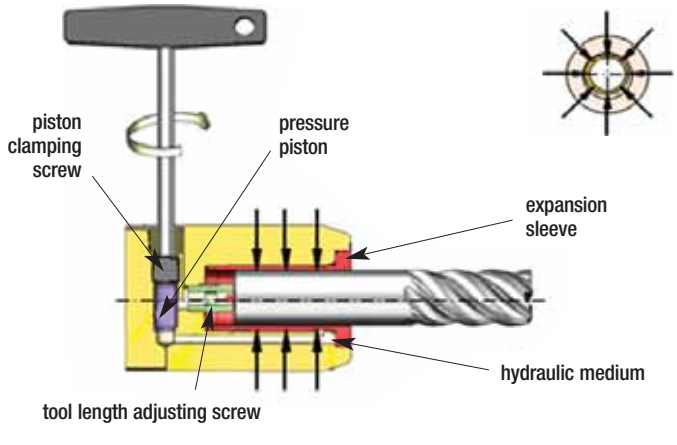
Advanced Hydraulic Clamping
- Three times better clamping force than regular hydraulic chucks, runout of 3 microns at 2.5 times diameter overhang vibration dampening. This results in up to 50% longer tool life and improved workpiece surface quality.

Balance Quality at G2.5 at 25.000 RPM
- Lower vibration, particularly at high speeds. This results in higher productivity.

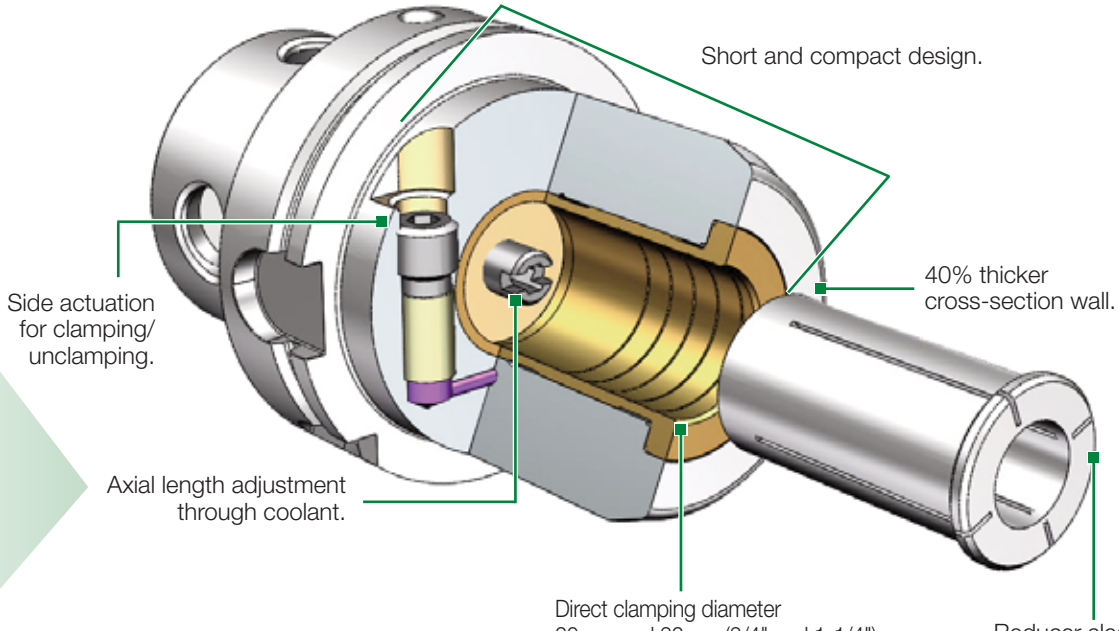
Easy Side Access for Clamping/Unclamping
- Mechanical stop for clamping and 10mm length adjustment. This results in reliable, consistent clamping and no over torque. No torque wrench required.

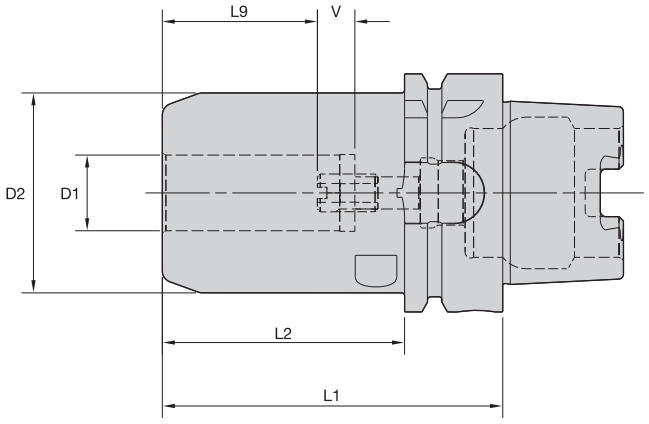
Focused and Flexible Product Offering
- Allows direct clamping for 20mm and 32mm (3/4" and 1-1/4").Reducer sleeves available for all combinations metric/inch, which results in reduced toolholder inventory, maximum flexibility, and minimum cost.

Hydraulic Chuck (HC) Basic Working Principle



HydroForce™ Advanced Features





L9 = minimum clamping length
V = maximum adjusting length

Cutting Tool Shank Requirements metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

ERICKSON™

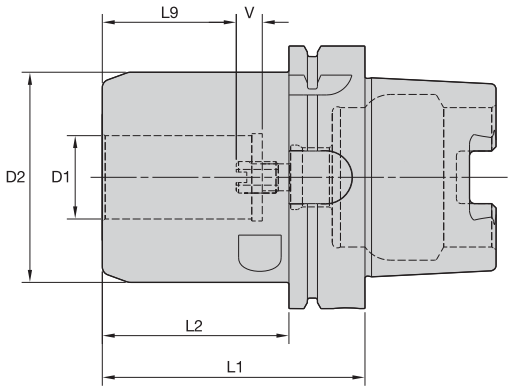
■ HCTHT • Metric • HSK Form A

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520975	**HSK63AHCTHT20090M**	20	52,9	90	64	41	10	5 mm	5 mm	1,56

■ HCTHT • Inch • HSK Form A

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5520958	**HSK63AHCTHT075350**	.750	2.081	3.500	2.478	1.614	.394	5 mm	5 mm	3.42

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Wrenches must be ordered separately.
Supplied with stop screw.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
HSK coolant unit and wrench are available and must be ordered separately; see page J32 of the WIDIA Tooling Systems catalog.



L9 = minimum clamping length
V = maximum adjusting length

Cutting Tool Shank Requirements metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

ERICKSON™

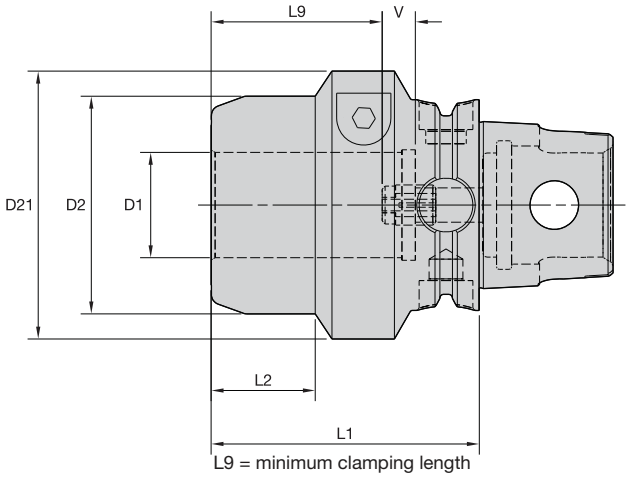
■ HCTHT • Metric • HSK Form A

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520976	**HSK100AHCTHT20090M**	20	65,0	90	61	41	10	5 mm	5 mm	3,38
5520977	**HSK100AHCTHT32100M**	32	80,0	100	71	51	10	6 mm	6 mm	4,29

■ HCTHT • Inch • HSK Form A

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5520959	**HSK100AHCTHT125400**	1.250	3.150	4.000	2.860	2.008	.394	6 mm	6 mm	9.61

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
HSK coolant unit and wrench are available and must be ordered separately;
see page J32 of the WIDIA Tooling Systems catalog.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.



L9 = minimum clamping length
V = maximum adjusting length

Cutting Tool Shank Requirements metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

KM™

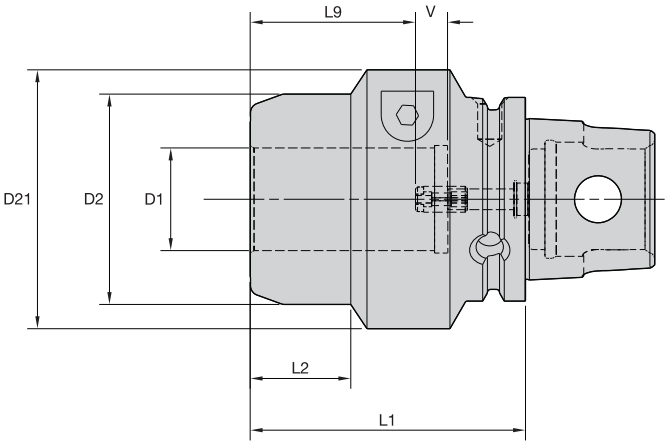
HCTHT • Metric • KM63TS

order number	catalog number	D1	D2	D21	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520979	**KM63TSHCTHT32080M**	32	65,0	80	80	31	51	10	6 mm	6 mm	2,00

HCTHT • Inch • KM63TS

order number	catalog number	D1	D2	D21	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521070	**KM63TSHCTHT125315**	1.250	2.559	3.150	3.150	1.220	2.008	.394	6 mm	6 mm	4.42

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.



L9 = minimum clamping length
V = maximum adjusting length

Cutting Tool Shank Requirements metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

KM™

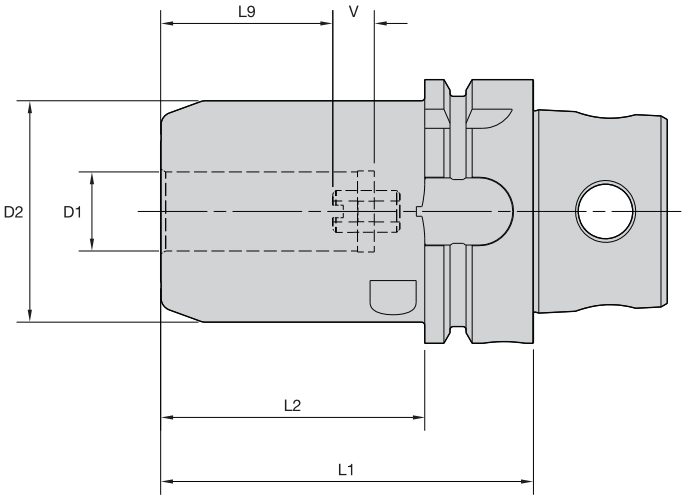
HCTHT • Metric • KM63XMZ

order number	catalog number	D1	D2	D21	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520978	**KM63XMZHCTHT32085M**	32	65,0	80	85	31	51	10	6 mm	4 mm	2,27

HCTHT • Inch • KM63XMZ

order number	catalog number	D1	D2	D21	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521079	**KM63XMZHCTHT125315**	1.250	2.559	3.150	3.150	1.260	2.008	.394	6 mm	4 mm	4.59

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.



L9 = minimum clamping length
V = maximum adjusting length

Cutting Tool Shank Requirements metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

KM™

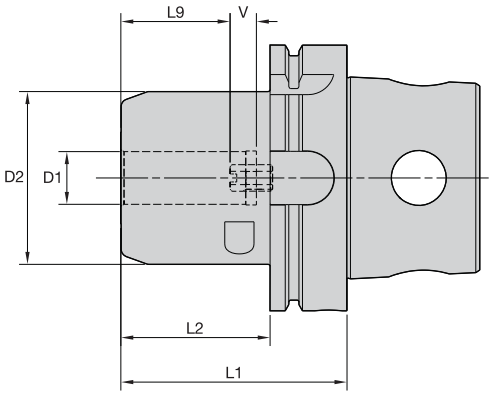
HCTHT • Metric • KM4X

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520990	**KM4X63HCTHT20090M**	20	52,9	90	64	41	10	5 mm	5 mm	1,64

HCTHT • Inch • KM4X

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521071	**KM4X63HCTHT075350**	.750	2.081	3.500	2.478	1.614	.394	5 mm	5 mm	3.60

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
KM4X63 coolant unit and wrench are available and must be ordered separately; order no. 5572428



L9 = minimum clamping length
V = maximum adjusting length

Cutting Tool Shank Requirements metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

KM™

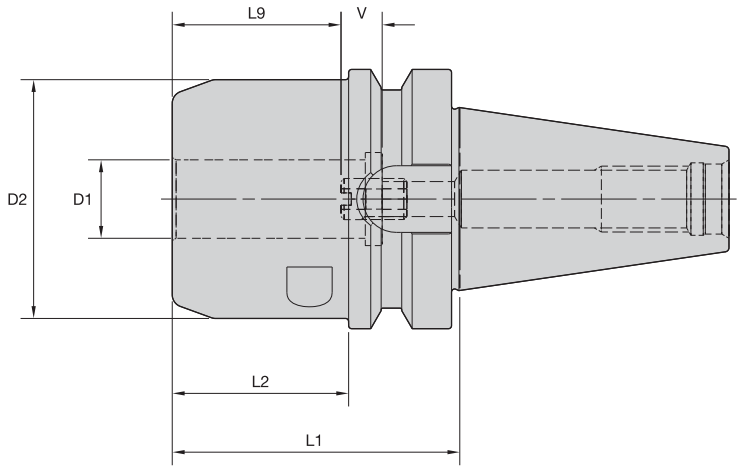
HCTHT • Metric • KM4X

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520991	**KM4X100HCTHT20085M**	20	65,0	85	56	41	10	5 mm	5 mm	3,53
5520992	**KM4X100HCHT32095M**	32	80,0	95	66	51	10	6 mm	6 mm	4,37

HCTHT • Inch • KM4X

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521072	**KM4X100HCHT125375**	1.250	3.150	3.750	2.630	2.008	.394	6 mm	6 mm	9.66

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
KM4X100 coolant unit and wrench are available and must be ordered separately; order no. 5572427
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.



L9 = minimum clamping length
V = maximum adjusting length

Cutting Tool Shank Requirements metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

ERICKSON™

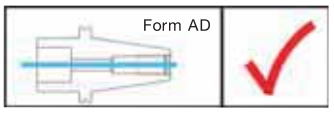
■ HCTHT • Metric • BT40

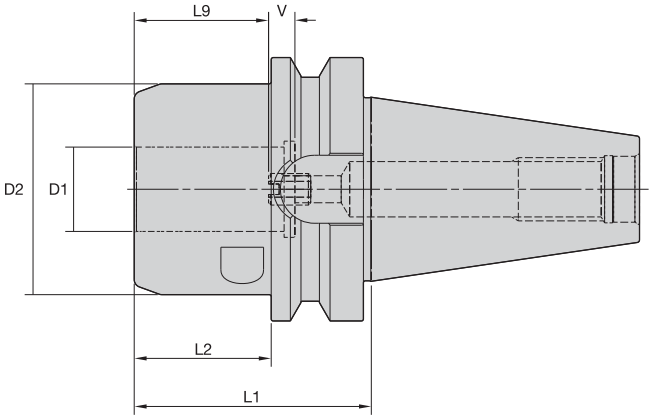
order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520971	**BT40HCTHT20070M**	20	58	70	43	41	10	5 mm	5 mm	1,67

■ HCTHT • Inch • BT40

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521073	**BT40HCTHT075275**	3/4	2.283	2.750	1.687	1.614	.394	5 mm	5 mm	3.70

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalog.





L9 = minimum clamping length
V = maximum adjusting length

Cutting Tool Shank Requirements metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

ERICKSON™

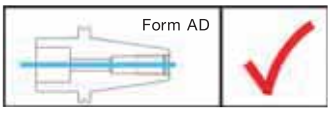
■ HCTHT • Metric • BT50

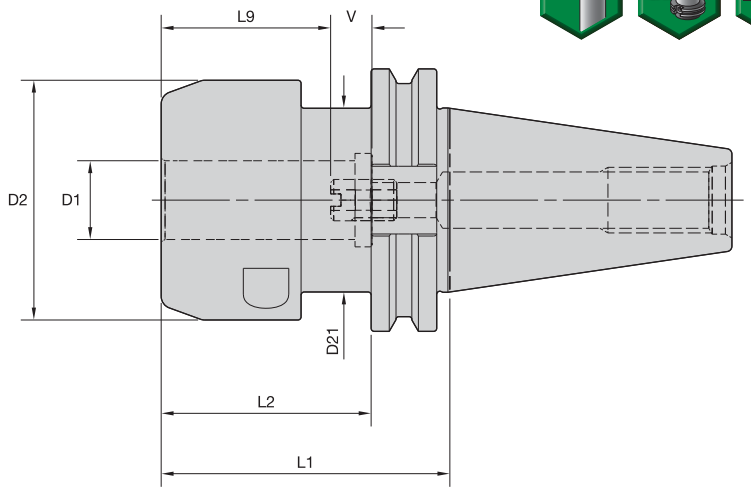
order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520972	**BT50HCTHT32090M**	32	80,0	90	52	51	10	6 mm	6 mm	5,09

■ HCTHT • Inch • BT50

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521074	**BT50HCTHT125350**	1 1/4	3.150	3.500	2.004	2.008	.394	6 mm	6 mm	11.14

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalog.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.





L9 = minimum clamping length
V = maximum adjusting length

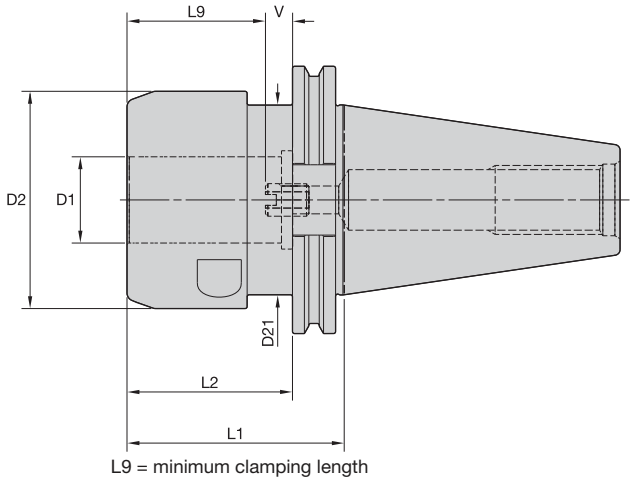
Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

ERICKSON™

■ HCTHT • Inch • CV40

order number	catalog number	D1	D2	D21	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521075	**CV40HCTHT075275**	3/4	2.283	—	2.750	2.000	1.614	.394	5 mm	5 mm	3.41



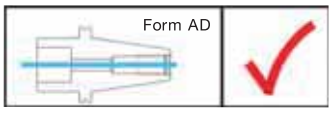
L9 = minimum clamping length
V = maximum adjusting length

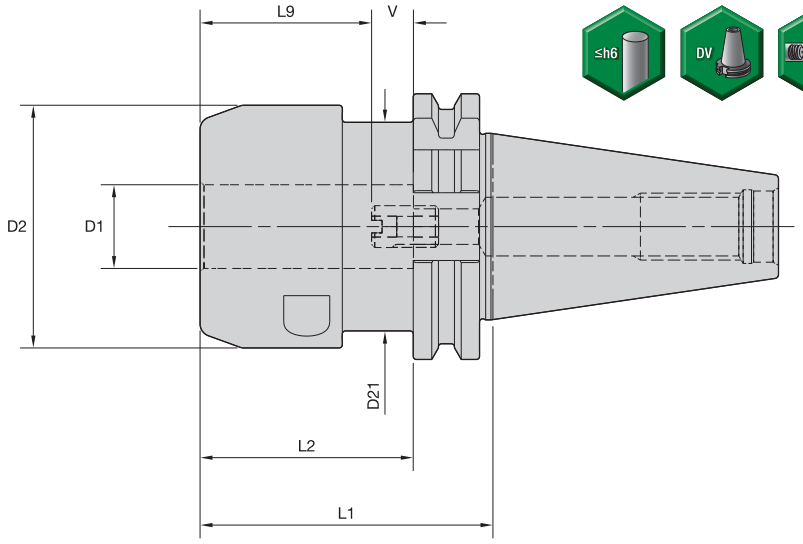
ERICKSON™

■ HCTHT • Inch • CV50

order number	catalog number	D1	D2	D21	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521076	**CV50HCTHT125315**	1 1/4	3.150	—	3.150	2.400	2.008	.394	6 mm	6 mm	9.48

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalog.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.





L9 = minimum clamping length
V = maximum adjusting length

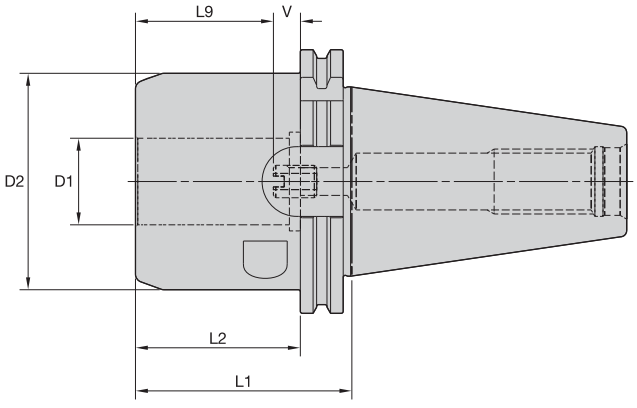
Cutting Tool Shank Requirements
metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

ERICKSON™

■ HCTHT • Metric • DV40

order number	catalog number	D1	D2	D21	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520973	**DV40HCTHT20070M**	20	58	—	70	51	41	10	5 mm	5 mm	1,58



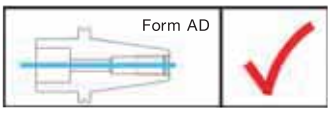
L9 = minimum clamping length
V = maximum adjusting length

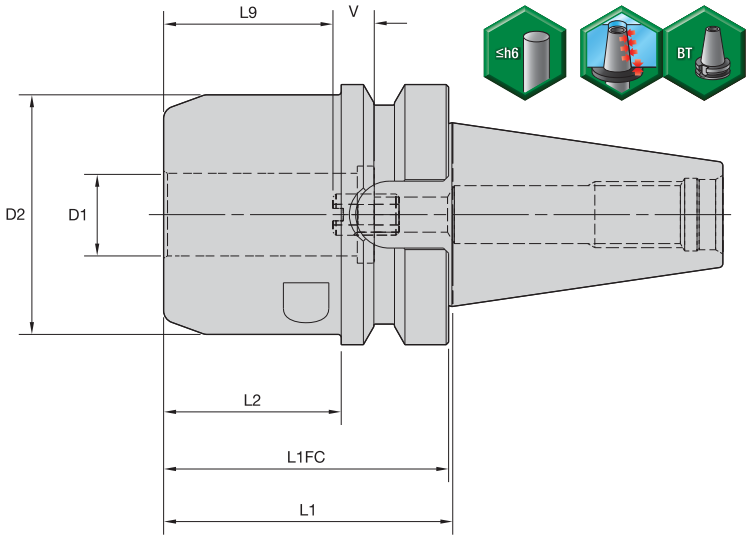
ERICKSON™

■ HCTHT • Metric • DV50

order number	catalog number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520974	**DV50HCTHT32080M**	32	80	80	61	51	10	6 mm	6 mm	4,45

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalog.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.





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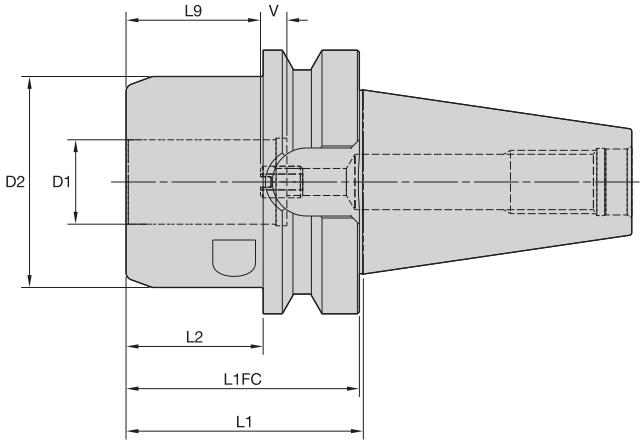
Cutting Tool Shank Requirements
metric (ISO standard)

cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20	h6	0,000/-0,013

ERICKSON™

■ HCTHT • Metric • BTKV40

order number	catalog number	D1	D2	L1	L1FC	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520993	**BTKV40HCTHT20070M**	20	58	70	69	43	41	10	5 mm	5 mm	1,62



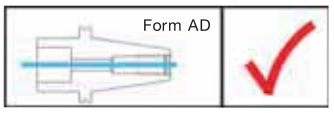
L9 = minimum clamping length
V = maximum adjusting length

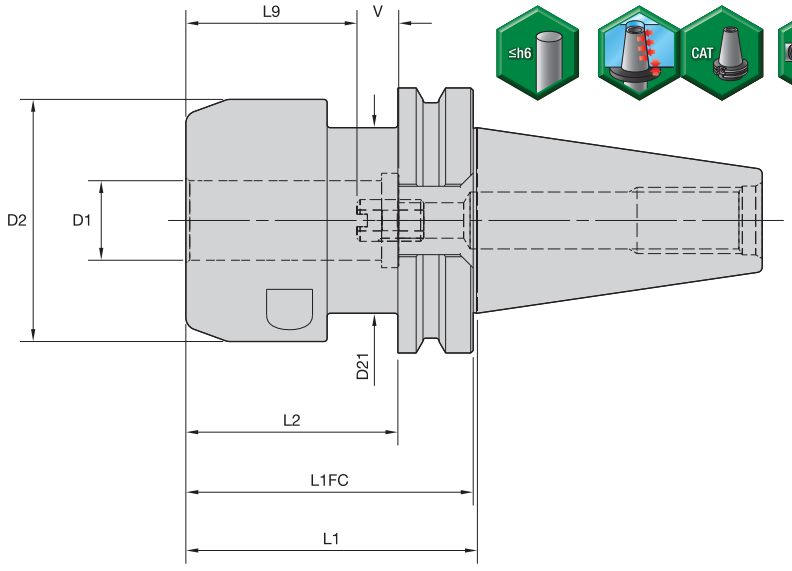
ERICKSON™

■ HCTHT • Metric • BTKV50

order number	catalog number	D1	D2	L1	L1FC	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520994	**BTKV50HCTHT32090M**	32	80	90	88.5	52	51	10	6 mm	6 mm	5,13

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalog.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.





L9 = minimum clamping length
V = maximum adjusting length

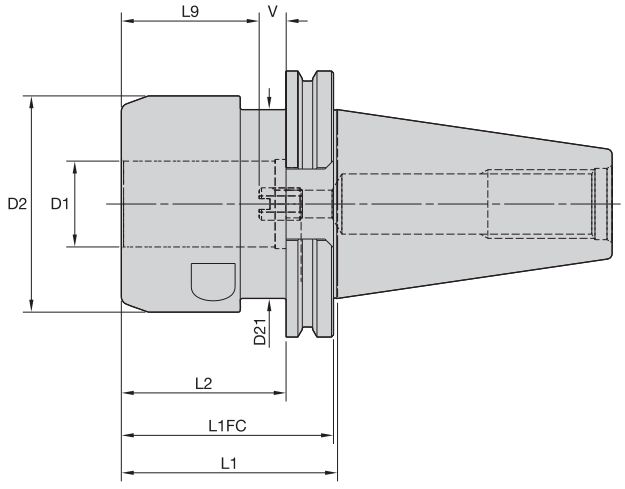
Cutting Tool Shank Requirements inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-.0004
3/4, 7/8, 1, & 1-1/4	.0000/-.0005

ERICKSON™

■ HCTHT • Inch • CVKV40

order number	catalog number	D1	D2	D21	L1	L1FC	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521077	CVKV40HCTHT075275	.750	2.283	1.750	2.750	2.711	2.000	1.614	.394	5 mm	5 mm	3.43



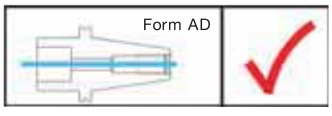
L9 = minimum clamping length
V = maximum adjusting length

ERICKSON™

■ HCTHT • Inch • CVKV50

order number	catalog number	D1	D2	D21	L1	L1FC	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521078	CVKV50HCTHT125315	1.250	3.150	2.750	3.150	3.091	2.400	2.008	.394	6 mm	6 mm	9.52

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Hydraulic chuck technical section, see pages K60–K63 of the WIDIA™ Tooling Systems catalog.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalog.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.



ERICKSON™ • HC Hydraulic Chuck Sleeve

ERICKSON Hydraulic Reduction Sleeves are specially designed for high-precision clamping of straight cylindrical cutting tool shanks. The self-sealing design enables efficient use of through-coolant cutting tools when the cutting tool shank completely engages the full gripping length of the sleeve.

HC

- One-piece design with slot configuration to seal coolant.
- Cutting tool must be cylindrical and have a through hole when using coolant.
- Capable of up to 100 bar (1,500 psi) coolant pressure.
- Cutting tool shank requirement tolerance is h6 and Ra ≥0,3 µm (12 µ in) surface finish.
- Maximum collapse is h6.

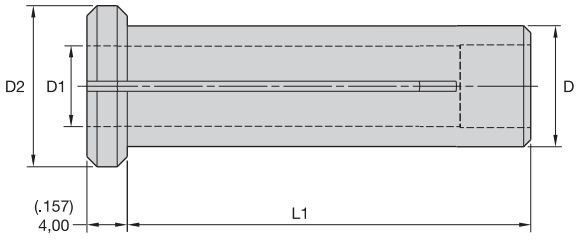
How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

ERICKSON

20	M	HC	160	M
System Size	System Value	Sleeve Style	Sleeve Bore Size	Identification Value
12 = 12mm **20** = 20mm **32** = 32mm **50** = 1/2" **75** = 3/4" **12** = 1-1/4"	**M** = Previous two numbers built in metric values	**HC** = Hydraulic Chuck	**metric (xx.x)** **010** = 1mm **160** = 16mm **250** = 25mm **inch (x.xxx)** **0125** = 1/8" **0500** = 1/2" **1000** = 1"	**M** = Sleeve bore size built to metric values **(blank)** = Sleeve bore size built to inch values

- One-piece design with slot configuration to seal coolant.
- Cutting tool must be cylindrical and have a through hole when using coolant.
- Sleeve must be inserted completely into the hydraulic chuck until shoulder mates against the hydraulic chuck front face.
- Cutting tools must be in full contact with the sleeve bore length (L1).



ERICKSON

Metric with Metric Bores

D1	20HC D = 20mm D2 = 25mm L1 = 50mm	32HC D = 32mm D2 = 36mm L1 = 60mm
3,0	**20MHC030M**	**–**
4,0	**20MHC040M**	**–**
5,0	**20MHC050M**	**–**
6,0	**20MHC060M**	**32MHC060M**
7,0	**20MHC070M**	**32MHC070M**
8,0	**20MHC080M**	**32MHC080M**
9,0	**20MHC090M**	**32MHC090M**
10,0	**20MHC100M**	**32MHC100M**
11,0	**20MHC110M**	**32MHC110M**
12,0	**20MHC120M**	**32MHC120M**
13,0	**20MHC130M**	**32MHC130M**
14,0	**20MHC140M**	**32MHC140M**
15,0	**20MHC150M**	**32MHC150M**
16,0	**20MHC160M**	**32MHC160M**
17,0	**–**	**32MHC170M**
18,0	**–**	**32MHC180M**
19,0	**–**	**32MHC190M**
20,0	**–**	**32MHC200M**
22,0	**–**	**32MHC220M**
25,0	**–**	**32MHC250M**

(continued)

(HC Hydraulic Chuck Sleeves continued)

Metric with Inch Bores

D1	20HC D = 20mm D2 = 25mm L1 = 50mm	32HC D = 32mm D2 = 36mm L1 = 60mm
3/16	20HCM0188	–
1/4	20HCM0250	–
5/16	20HCM0312	–
3/8	20HCM0375	–
7/16	20HCM0438	–
1/2	20HCM0500	32HCM0500
9/16	20HCM0562	32HCM0562
5/8	20HCM0625	32HCM0625
11/16	–	32HCM0688
3/4	–	32HCM0750
7/8	–	32HCM0875
1	–	32HCM1000

Inch with Metric Bores

D1	75HC D = .750 D2 = .984 L1 = 1.969	12HC D = 1.250 D2 = 1.417 L1 = 2.362
3,0	75HC030M	–
4,0	75HC040M	–
5,0	75HC050M	–
6,0	75HC060M	–
8,0	75HC080M	–
10,0	75HC100M	–
12,0	75HC120M	–
14,0	75HC140M	–
16,0	75HC160M	12HC160M
18,0	–	12HC180M
20,0	–	12HC200M
25,0	–	12HC250M

Inch with Inch Bores

D1	75HC D = .750 D2 = .945 L1 = 1.969	12HC D = 1.250 D2 = 1.417 L1 = 2.362
1/8	75HC0125	–
3/16	75HC0188	–
1/4	75HC0250	–
5/16	75HC0312	–
3/8	75HC0375	–
7/16	75HC0438	–
1/2	75HC0500	12HC0500
9/16	75HC0562	12HC0562
5/8	75HC0625	12HC0625
11/16	–	12HC0688
3/4	–	12HC0750
13/16	–	12HC0812
7/8	–	12HC0875
1	–	12HC1000

NOTE: Inserting the cutting tool less than the full gripping length (L9) of the sleeve can permanently damage the sleeve and hydraulic chuck. Full length of the gripping bore needs to be maintained to achieve maximum accuracy, safety, and coolant sealing feature.

HydroForce HT Torque Comparison

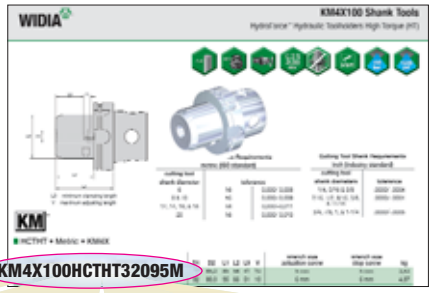
Torque Capacity of Toolholders, Nm

bore diameter (mm)	shank diameter (mm)	adapter type				
		regular hydraulic chuck	Shrink Fit holder* GP	Shrink Fit holder* HT	HydroForce™ hydraulic chuck	milling chuck (bearing type)
20	**20**	220	410–1050	650–1290	**800**	1120
32	**32**	700	1030–2080	1340–2380	**2000**	2350
32 with sleeve	**20**	440	—	—	**1500**	1460

*Torque is highly influenced by shank diameter of cutting tool and bore size.
All above torque values are for solid carbide shanks in dry condition at minimum clamping length.

How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

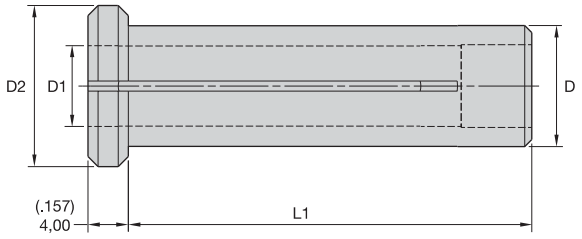


KM4X	100	HCTHT	32	095	M
Shank Style	System Size	Toolholder Style (**H**ydraulic **C**huck **T**rend Line **H**igh **T**orque)	Toolholder Size (Bore Size)	Tool Length	**M**etric

- **HC** — Hydraulic Chuck standard line
- **HCB** — Hydraulic Chuck basic line
- **HCSLT** — Hydraulic Chuck — Slim Line — Trend
- **HCT** — Hydraulic Chuck — Trend Line

Reducer Sleeve Product Portfolio

Reducer Sleeves		
d	**D (metric)**	**D (inch)**
12mm	3–10	—
20mm	3–16	3/16–5/8"
25mm	3–20	—
32mm	6–25	1/2–1"
1/2"	3–10	1/8–3/8"
3/4"	3–16	1/8–5/8"
1-1/4"	6–25	1/2–1"



Reduction sleeves available in metric and inch bores.

Applying the Product

High Torque Hydraulic chuck is a new solution developed by WIDIA™ to address holding in all types of applications in all types of material.

These chucks have great gripping torque comparable to Shrinkers and Power grip chucks.

They can be used to hold shank diameters having h4 (3–4mm), h5 (5mm), h6 (>6mm) tolerance in rough milling, tapping, drilling, reaming applications-recommended to hold solid carbide shanks.

Parameters as recommended in solid carbide end milling catalogs can be used.

NOTE: Check if spindle connections can support the bending loads.

One Powerful Chuck — Best Suited for All Operations.

	3D Profiling		Coolant — Through Coolant 100 bar (1500 psi) Maximum		Drilling into Solid		Drilling — Through Coolant
	Plunge Milling		Ramping: Blank		Reaming: Through Hole		Shank — Cylindrical Plain
	Side/Shoulder Milling: Square End with AE/AP Dimensions		Slotting: Square End		Tapping: Through Hole		

- Cutting tool must be cylindrical and have a through hole when using coolant.
- Sleeve must be inserted completely into the hydraulic chuck until shoulder mates against the hydraulic chuck front face.

Benchmark Toolholders

	toolholders				
technical data/characteristics	HydroForce high torque	Shrink Fit	milling chuck	ER collet chuck	Weldon® adapter
torque transmission	★★★★★	★★★★	★★★★★	★★	★★★★★
radial runout (T.I.R.)[1]	★★★★★	★★★★★	★★★★	★★★	★
radial rigidity[2]	★★★★	★★★★★	★★★	★★★	★★★
tool length adjustment	★★★★★	★★★★	★	★★★★	★★
tool shank tolerance requirement	★★★★	★★	★★★	★★★★★	★★★
through coolant	★★★★★	★★★★★	★★★	★★★	★★
minimum quantity lubrication (MQL)	★★★★★	★★★★★	★	★	★
dampening capability	★★★★★	★	★★★	★★★	★★★
shank diameter range[3]	★★★★★	★	★★★★★	★★★★★	★
cost of toolholder	★★	★★★★	★	★★★★	★★★★★
low requirement of external devices[4]	★★★★★	★	★★★★	★★★★	★★★★★
ease of handling	★★★★★	★★★	★★	★★★★	★★★★
dust resistance	★★★★★	★★★★★	★★★	★★★	★★★★
high-speed capability	★★★★★	★★★★★	★★★	★★★	★
balancing accuracy	★★★★★	★★★★★	★★★	★★★	★

[1] Radial runout may affect tool life
[2] Radial rigidity for Weldon holder is low at a direction perpendicular to the screw
[3] Accepts different shank diameters through the use of reduction sleeves or due to collapse range
[4] Collet chucks and milling chucks may require the use of a torque or special wrench; Shrink Fit adapter requires a shrinking unit

Field Test 1

$25,000 estimated savings per year

S650 Cylinder Head

CHALLENGE

- Operation — End milling inside of rocker valley
- Material — Varifer cast iron
- Coolant type — External emulsion

SOLUTION

- Adapter — CV50BHCHTHT32080M; used 1" reduction sleeve
- Base line — CV50BHPMC100650
- End mill — HPHV1000S4400R030 KCPM15

CUTTING DATA

- vc — 380 SFM (116 m/min)
- fz — .0045 IPT (0,114 mm/U)
- Ap — .2" (5,08mm)
- Ae — .1" (2,54mm)
- Spindle speed — 1451 rev/min

RESULT

- **Standard HPMC chuck — 63 minute tool life.**
- **New HydroForce HT — 101 minute tool life.**
- **984 ft (299 m) increment in tool life distance.**

BENEFIT

- **80% more tool life compared to competition.**
- **Estimated savings of $25,893K per year**
- **Exceptional surface finish**
- **Easy handling and tool presetting**

Field Test 2

2,3 x longer tool life

Mill Mounting & Pump Flange

CHALLENGE

- Operation — Side/face milling and slotting
- Material — 80-55-06 (gray cast iron)
- Coolant type — External emulsion

SOLUTION

- Adapter — CV50BHCHTHT32080M; used 3/4" reduction sleeve
- Base line — CV50EM075575
- End mill — UCDE750K5ARB KCPM15

CUTTING DATA

- vc — 344 SFM (105,1 m/min)
- F — .0046 IPT (0,116 mm/U)
- Ap — .69" (17,526mm)
- Ae — .15" (3,81mm)
- Spindle speed — 1750 rev/min

RESULT

- **Standard end mill adapter — 80.9 minute tool life.**
- **New HydroForce HT — 213.1 minute tool life.**
- **5290 ft (1612 m) increment in tool life distance.**

BENEFIT

- **2.3X more tool life compared to competition.**
- **Estimated savings of $14,840K per year.**
- **Exceptional surface finish.**
- **Easy handling and tool presetting.**

Field Test 3

Exceptional surface quality

Straightness Test with INCONEL® 718

CHALLENGE

- Operation – Slotting
- Material – INCONEL 718
- Coolant type — External emulsion

SOLUTION

- Adapter – DV40BHCTHT20090M; direct clamp
- Base line – D=20mm, GPL=82mm

CUTTING DATA

- vc — 85.09 SFM (26 m/min)
- F — 120 m/min
- Ap — .787" (20mm)
- Ae — .015" (4mm)
- Ran for 20 minutes

RESULT

- **Straightness measured — 0.05.**
- **No chip off and no wear found on cutting edges.**

BENEFIT

- **Better quality of straightness.**
- **No pullout.**
- **Exceptional surface finish.**
- **Easy handling and tool presetting.**

HydroForce™ HT
ADVANCES 2015

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