

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

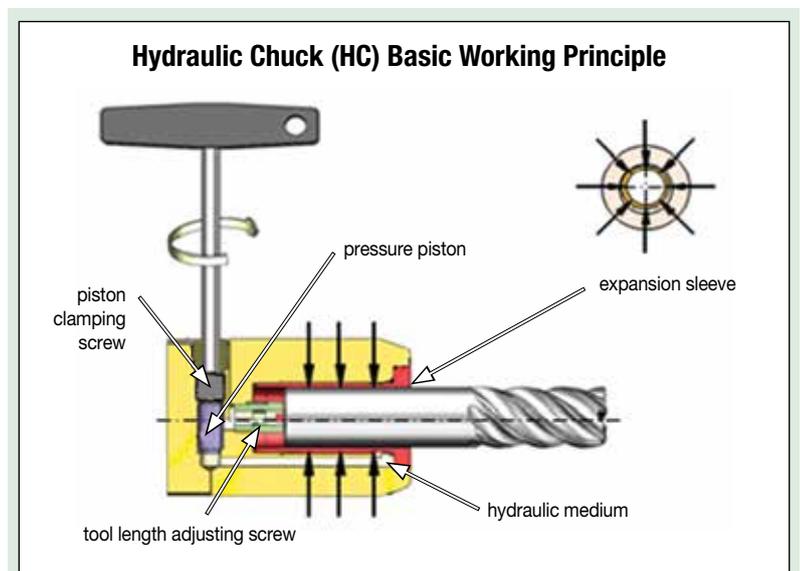
- Lower vibration, particularly at high speeds. This results in higher productivity.

Easy Side Access for Clamping/Unclamping

- Mechanical stop for clamping and 10mm (3/8") length adjustment. This results in reliable, consistent clamping and no over torque. No torque wrench required.

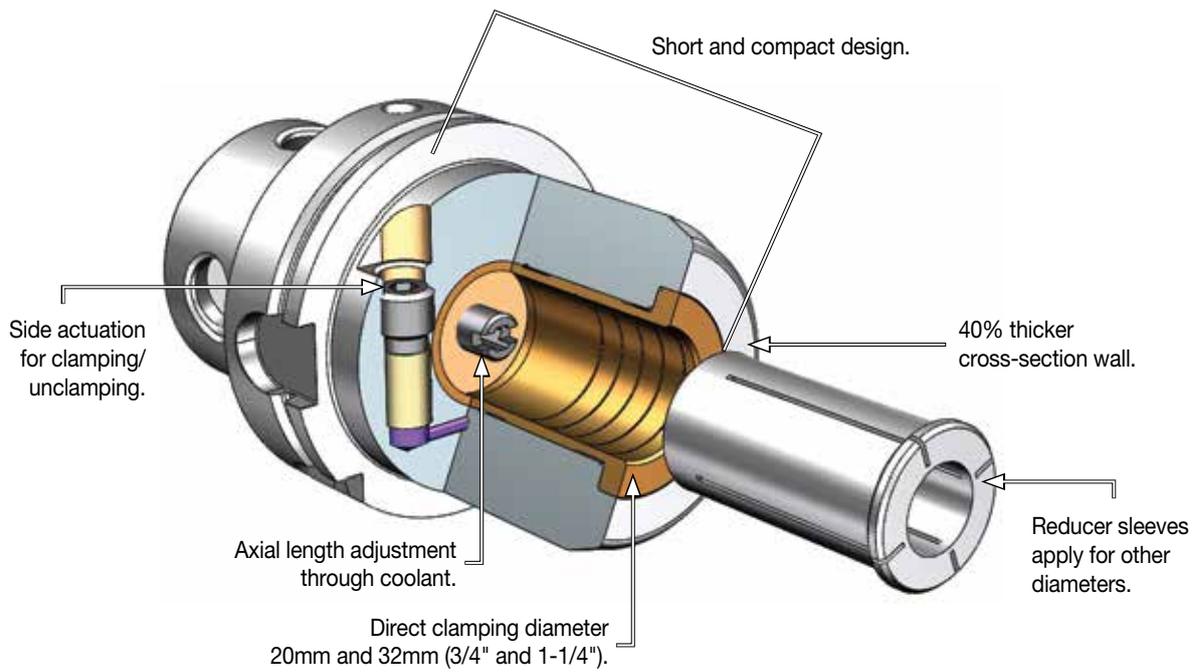
Focused and Flexible Product Offering

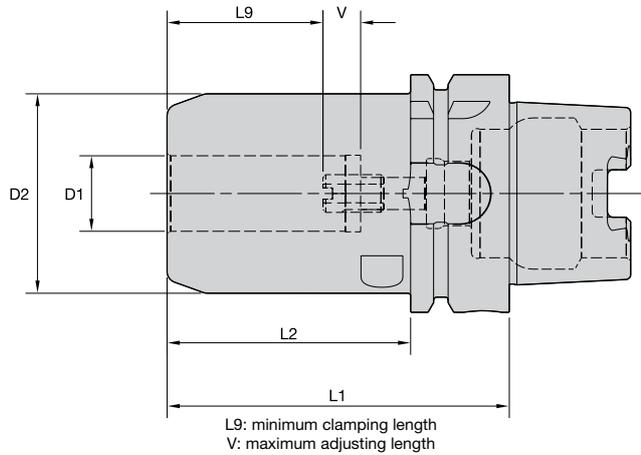
- Allows direct clamping for 20mm and 32mm (3/4" and 1-1/4"). Reducer sleeves available for all combinations metric/inch, which results in reduced toolholder inventory, maximum flexibility, and minimum cost.





HydroForce™ Advanced Features





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

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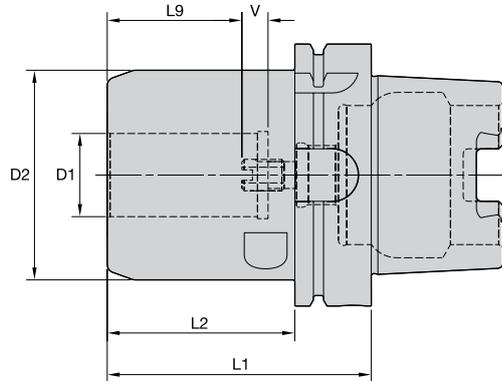
■ HCTHT • Metric • HSK Form A

order number	catalogue number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520975	HSK63AHCTHT20090M	20	52,5	90	64	41	10	5 mm	5 mm	1,54

■ HCTHT • Inch • HSK Form A

order number	catalogue number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5520958	HSK63AHCTHT075350	.750	2.067	3.500	2.478	1.614	.394	5 mm	5 mm	3.39

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 catalogue A-09-02122.
 Wrenches must be ordered separately.
 Supplied with stop screw.
 Actuation wrench must be ordered separately.
 Reduction sleeves are available and must be ordered separately; see page 18–19.
 HSK coolant unit and wrench are available and must be ordered separately;
 see page J32 of the WIDIA Tooling Systems catalogue A-09-02122.



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/-0.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-0.0004
3/4, 7/8, 1, & 1-1/4	.0000/-0.0005

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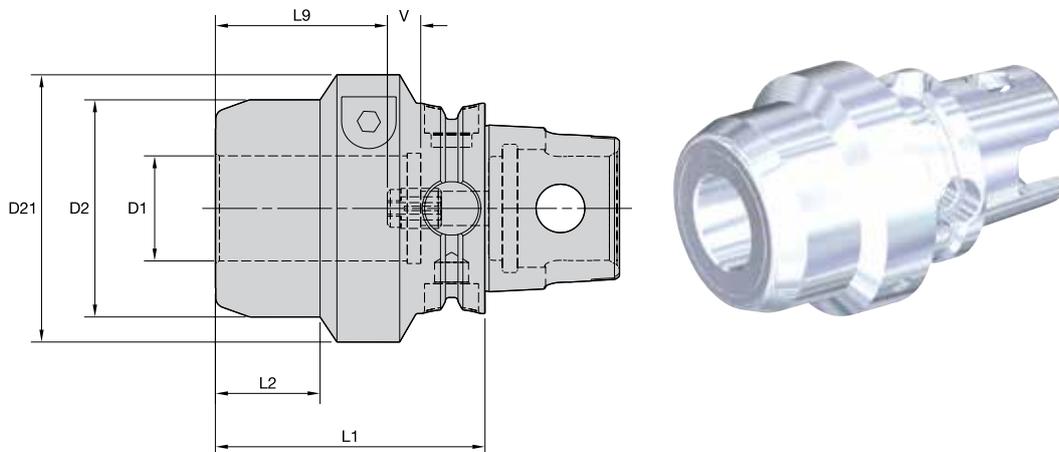
■ HCTHT • Metric • HSK Form A

order number	catalogue 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	catalogue 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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 18–19.
HSK coolant unit and wrench are available and must be ordered separately; see page J32 of the WIDIA Tooling Systems catalogue A-09-02122.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.



**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/-0.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-0.0004
3/4, 7/8, 1, & 1-1/4	.0000/-0.0005



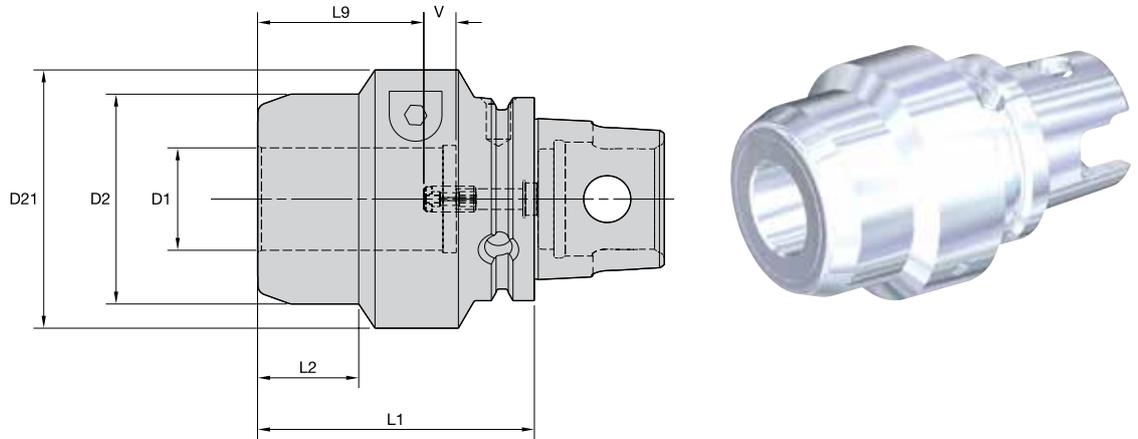
■ HCTHT • Metric • KM63TS

order number	catalogue 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	catalogue 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 catalogue A-09-02122.
 Supplied with stop screw.
 Actuation wrench must be ordered separately.
 Reduction sleeves are available and must be ordered separately; see page 18–19.
 For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.



**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



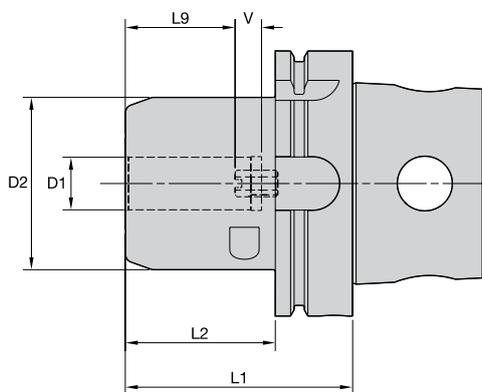
■ HCTHT • Metric • KM63XMZ

order number	catalogue 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	catalogue 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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 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/-0.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-0.0004
3/4, 7/8, 1, & 1-1/4	.0000/-0.0005



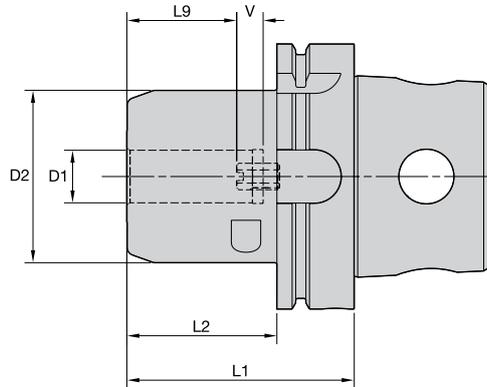
■ HCTHT • Metric • KM4X™

order number	catalogue number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520990	KM4X63HCTHT20090M	20	52,5	90	64	41	10	5 mm	5 mm	1,63

■ HCTHT • Inch • KM4X

order number	catalogue number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521071	KM4X63HCTHT075350	.750	2.067	3.500	2.478	1.614	.394	5 mm	5 mm	3.57

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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 18–19.
KM4X63 coolant unit and wrench are available and must be ordered separately; order number 5572428 and 1134161.



**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



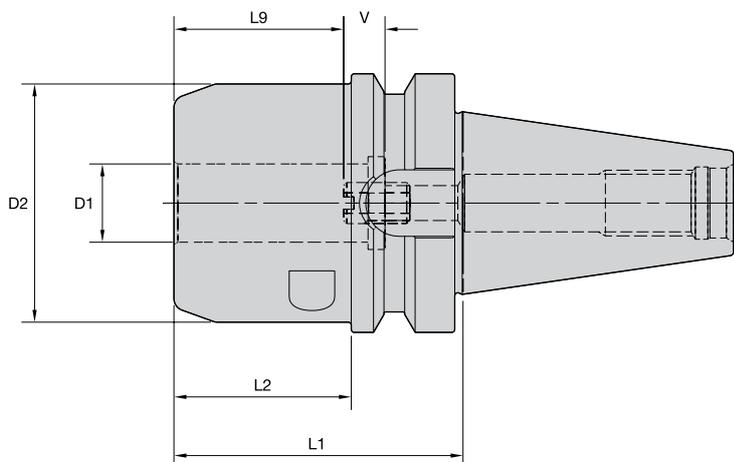
■ HCTHT • Metric • KM4X™

order number	catalogue 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	KM4X100HCTHT32095M	32	80,0	95	66	51	10	6 mm	6 mm	4,37

■ HCTHT • Inch • KM4X

order number	catalogue number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	lbs
5521072	KM4X100HCTHT125375	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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 18–19.
KM4X100 coolant unit and wrench are available and must be ordered separately; order number 5572427 and 1132993.



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

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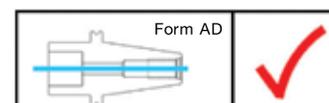
■ HCTHT • Metric • BT40

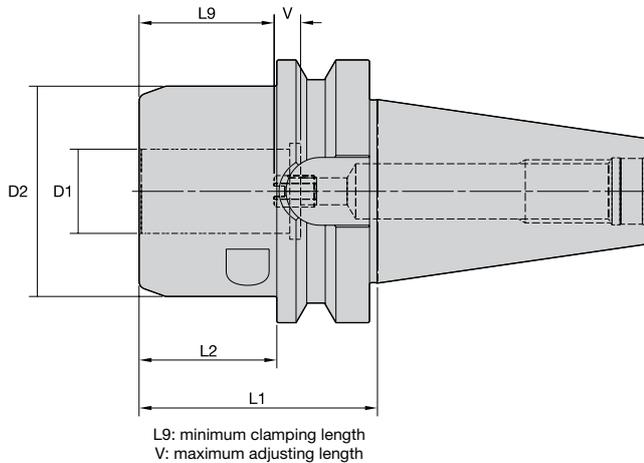
order number	catalogue number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520971	BT40HCTHT20070M	20	58	70	43	41	10	5 mm	5 mm	1,67

■ HCTHT • Inch • BT40

order number	catalogue 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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalogue A-09-02122.





**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/-0.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-0.0004
3/4, 7/8, 1, & 1-1/4	.0000/-0.0005

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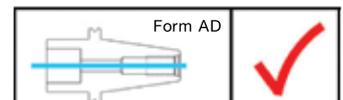
■ HCTHT • Metric • BT50

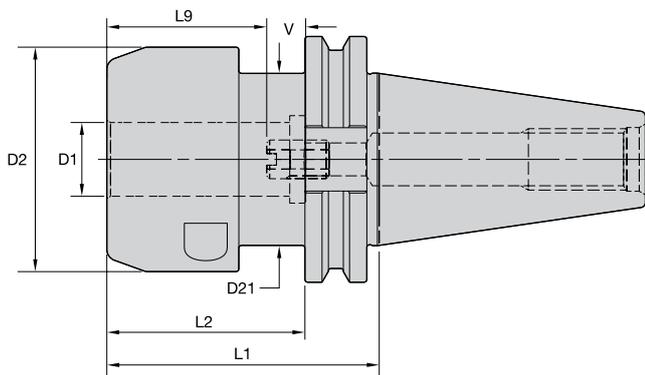
order number	catalogue number	D1	D2	L1	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520972	BT50HCTHT32090M	32	80	90	52	51	10	6 mm	6 mm	5,09

■ HCTHT • Inch • BT50

order number	catalogue 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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalogue A-09-02122.
For D1 of 32mm (1.25"), please use 6mm Allen wrench with minimum length of 180mm.





L9: minimum clamping length
V: maximum adjusting length



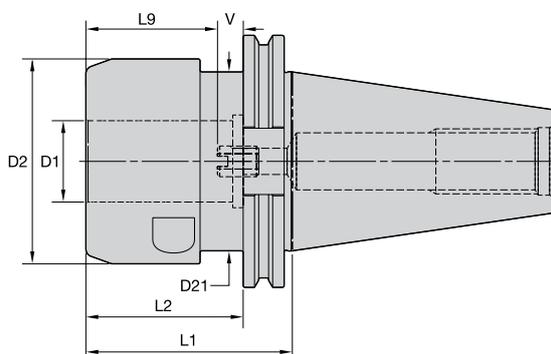
Cutting Tool Shank Requirements
inch (industry standard)

cutting tool shank diameters	tolerance
1/4, 5/16 & 3/8	.0000/-0.0004
7/16, 1/2, 9/16, 5/8, & 11/16	.0000/-0.0004
3/4, 7/8, 1, & 1-1/4	.0000/-0.0005

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■ HCTHT • Inch • CV40

order number	catalogue number	D1	D2	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

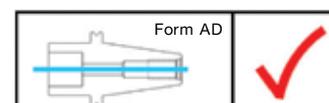


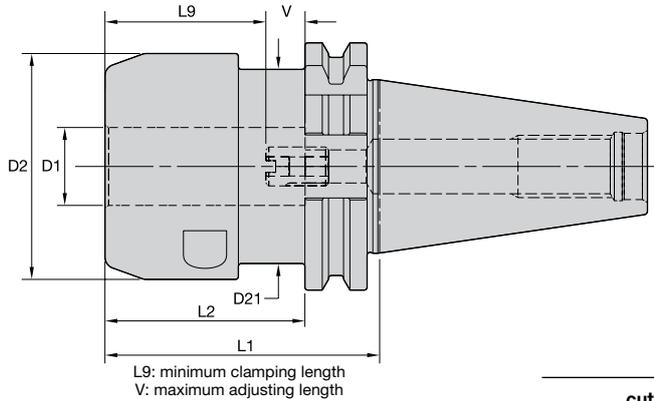
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■ HCTHT • Inch • CV50

order number	catalogue number	D1	D2	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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 18–19.
For retention knobs, see pages J33–J38 of the WIDIA Tooling Systems catalogue A-09-02122.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.





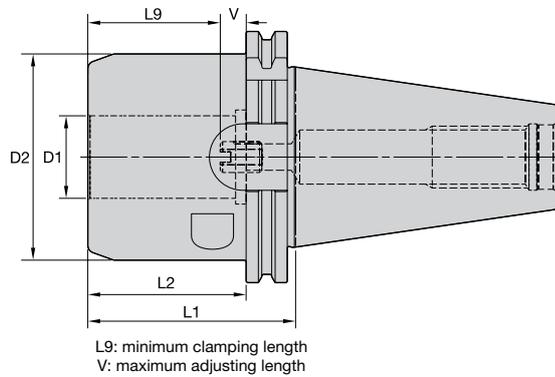
Cutting Tool Shank Requirements
metric (ISO standard)

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

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■ HCTHT • Metric • DV40

order number	catalogue number	D1	D2	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

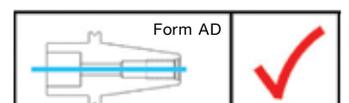


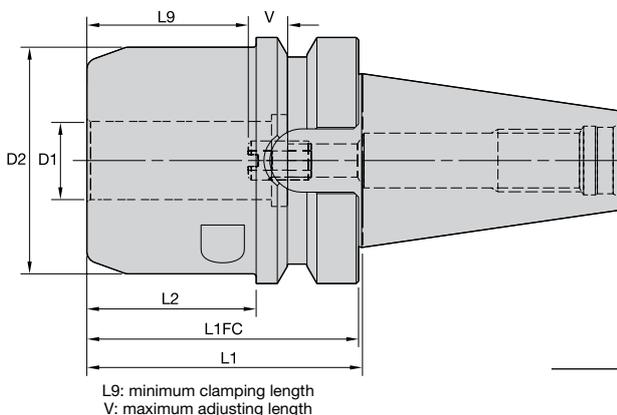
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■ HCTHT • Metric • DV50

order number	catalogue 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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see pages 100002258.
For retention knobs, see page J33–J38 of the WIDIA Tooling Systems catalogue A-09-02122.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.





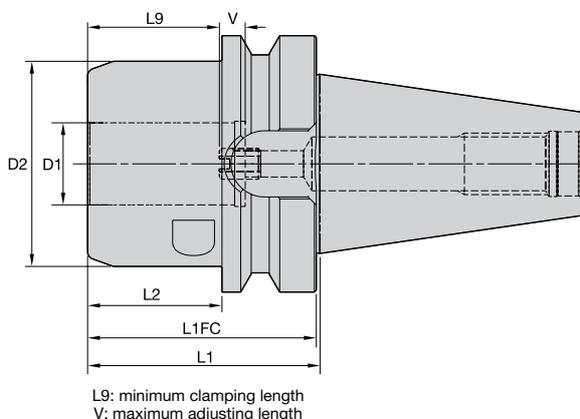
**Cutting Tool Shank Requirements
metric (ISO standard)**

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

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■ HCTHT • Metric • BTKV40

order number	catalogue 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

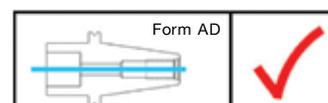


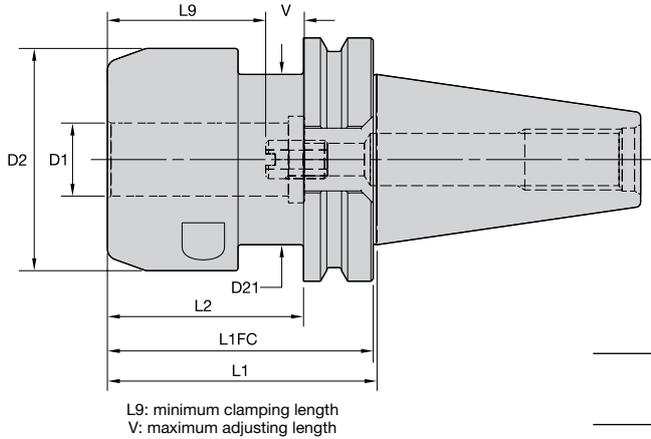
ERICKSON™

■ HCTHT • Metric • BTKV50

order number	catalogue number	D1	D2	L1	L1FC	L2	L9	V	wrench size actuation screw	wrench size stop screw	kg
5520994	BTKV50HCTHT32090M	32	80	90	89	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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 18–19.
For retention knobs, see pages J33–J38 WIDIA Tooling Systems catalogue A-09-02122.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.





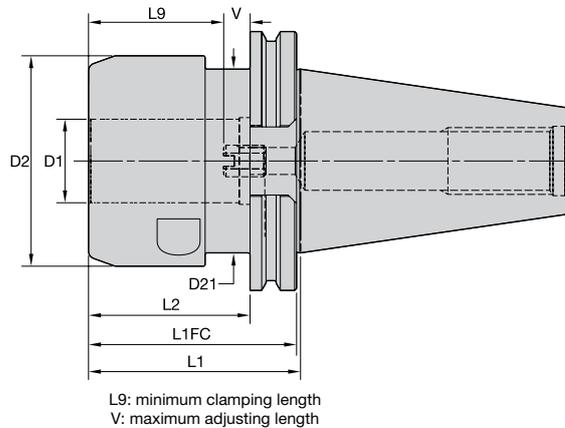
Cutting Tool Shank Requirements
inch (industry standard)

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	catalogue 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

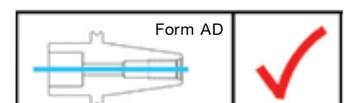


ERICKSON™

■ HCTHT • Inch • CVKV50

order number	catalogue 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 catalogue A-09-02122.
Supplied with stop screw.
Actuation wrench must be ordered separately.
Reduction sleeves are available and must be ordered separately; see page 18–19.
For retention knobs, see pages J33–J38 WIDIA Tooling Systems catalogue A-09-02122.
For diameter D1 32mm (1-1/4"), use an L-shape Allen wrench with side length of approximately 200mm.



ERICKSON™ HC Hydraulic Chuck Sleeves

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.

ERICKSON™

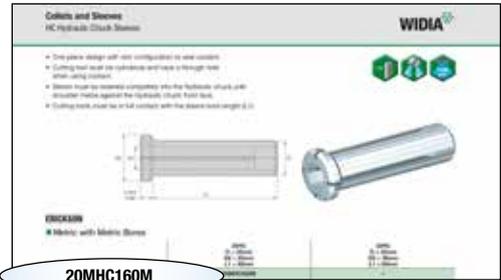


HC

- 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 $\geq 0,3 \mu\text{m}$ (12 μin) surface finish.
- Maximum collapse is h6.

How Do Catalogue Numbers Work?

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


ERICKSON™
20

 System
Size

12 = 12mm
20 = 20mm
32 = 32mm
50 = 1/2"
75 = 3/4"
12 = 1-1/4"

M

 System
Value

M = Previous two numbers built in metric values

HC

 Sleeve
Style

HC = Hydraulic Chuck

160

 Sleeve
Bore Size

metric (xx.x)
010 = 1mm
010 = 16mm
010 = 25mm
inch (x.xxx)
0125 = 1/8"
0500 = 1/2"
1000 = 1"

M

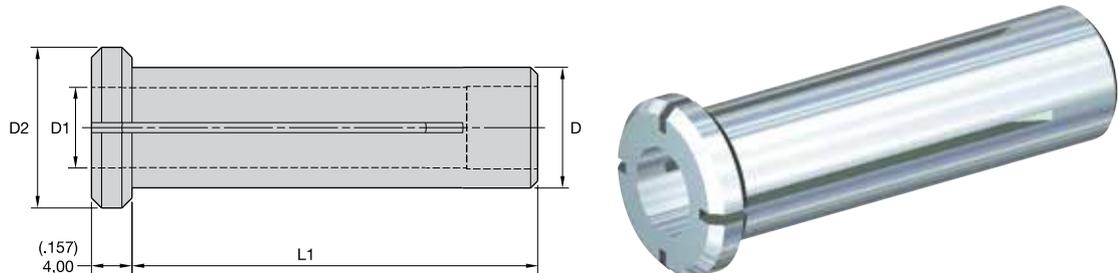
 Identification
Value

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 Chucks – 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	—
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 (L1) 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)	adaptor 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 Catalogue Numbers Work?

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



KM4X100HCTHT32095M

KM4X

Shank Style

100

System Size

HCTHT

Toolholder Style
(Hydraulic Chuck Trend Line High Torque)

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

32

Toolholder Size
(Bore Size)

095

Tool Length

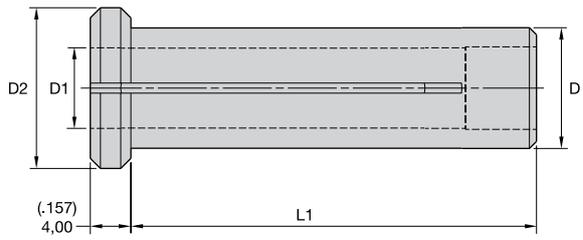
M

Metric



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, and reaming applications recommended to hold solid carbide shanks.

Parameters as recommended in solid carbide end milling catalogues 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

technical data/characteristics	toolholders				
	HydroForce high torque	Shrink Fit	milling chuck	ER collet chuck	Weldon® adaptor
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 adaptor requires a shrinking unit.



\$25,000 estimated savings per year	2.3x longer tool life	Exceptional surface quality
Field Test 1	Field Test 2	Field Test 3
S650 Cylinder Head	Mill Mounting & Pump Flange	Straightness Test with INCONEL® 718
<p>CHALLENGE</p> <ul style="list-style-type: none"> • Operation — End milling inside of rocker valley • Material — Varifer cast iron • Coolant type — External emulsion 	<p>CHALLENGE</p> <ul style="list-style-type: none"> • Operation — Side/face milling and slotting • Material — 80-55-06 (grey cast iron) • Coolant type — External emulsion 	<p>CHALLENGE</p> <ul style="list-style-type: none"> • Operation — Slotting • Material — INCONEL 718 • Coolant type — External emulsion
<p>SOLUTION</p> <ul style="list-style-type: none"> • Adaptor — CV50BHCHTHT32080M; used 1" reduction sleeve • Base line — CV50BHPMC100650 • End mill — 4V6525028BW WP15PE 	<p>SOLUTION</p> <ul style="list-style-type: none"> • Adaptor — CV50BHCHTHT32080M; used 3/4" reduction sleeve • Base line — CV50EM075575 • End mill — 5V0C19007BT WP15PE 	<p>SOLUTION</p> <ul style="list-style-type: none"> • Adaptor — DV40BHCHTHT20090M; direct clamp • Base line — D = 20mm, GPL = 82mm
<p>CUTTING DATA</p> <ul style="list-style-type: none"> • vc — 116 m/min (380 SFM) • fz — 0,114 mm/U (.0045 IPT) • Ap — 5,08mm (.2") • Ae — 2,54mm (.1") • Spindle speed — 1451 rev/min 	<p>CUTTING DATA</p> <ul style="list-style-type: none"> • vc — 105,1 m/min (344 SFM) • F — 0,116 mm/U (.0046 IPT) • Ap — 17,526mm (.69") • Ae — 3,81mm (.15") • Spindle speed — 1750 rev/min 	<p>CUTTING DATA</p> <ul style="list-style-type: none"> • vc — 26 m/min (85.09 SFM) • F — 120 m/min • Ap — 20mm (.787") • Ae — 4mm (.015") • Ran for 20 minutes
<p>RESULT</p> <ul style="list-style-type: none"> • Standard HPMC chuck — 63 minute tool life. • New HydroForce HT — 101 minute tool life. • 299 m (984 ft) increment in tool life distance. 	<p>RESULT</p> <ul style="list-style-type: none"> • Standard end mill adaptor — 80.9 minute tool life. • New HydroForce HT — 213.1 minute tool life. • 1612 m (5290 ft) increment in tool life distance. 	<p>RESULT</p> <ul style="list-style-type: none"> • Straightness measured — 0,05mm. • No chip off and no wear found on cutting edges.
<p>BENEFIT</p> <ul style="list-style-type: none"> • 80% more tool life compared to competition. • Estimated savings of \$25,893 per year. • Exceptional surface finish. • Easy handling and tool presetting. 	<p>BENEFIT</p> <ul style="list-style-type: none"> • 2.3x more tool life compared to competition. • Estimated savings of \$14,840 per year. • Exceptional surface finish. • Easy handling and tool presetting. 	<p>BENEFIT</p> <ul style="list-style-type: none"> • Better quality of straightness. • No pullout. • Exceptional surface finish. • Easy handling and tool presetting.

HydroForce™ HT ADVANCES 2015

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