SPV SPINTEC®

HSK

PRODUCT CATALOGUE **2015**

made in SWEDEN

Information

Quick facts about SPV Spintec´s hydraulic chucks!

- High clamping torque, 320 Nm at a Ø20 mm shank in a standard hydraulic chuck.
- Runout accuracy better than 0,003 mm. (see below).
- Quick assembly method of the tool. No special equipment needed.
- Balanced for 10 000 RPM (G 6.3) as standard - can be supplied fine balanced up to 30 000 RPM (G 2.5).
- The widest range of hydraulic chucks on the market. Available for all applications.
- If our standard assortment isn´t enough we will design a chuck according to your needs!

Why should you use SPV Spintec´s hydraulic chucks?

- Up to 50 % longer lifetime of the tool compared to conventional tool holder systems.
- Increased surface finish, thanks to the solid fastening of the tool.
- Permits machining with much closer toleranses.
- Quicker and simpler tool changes.

Runout accuracy

All of our hydraulic chuck models are made with runout accuracy better than 0,003 mm. This means that you can machine to closer tolerances and tool lifetime is extended - giving you better overall economy.

Our different types of hydraulic chucks

- Type HCF / HCF+
  Short standard chuck

- Type HCFL / HCFL+
  Extended standard chuck

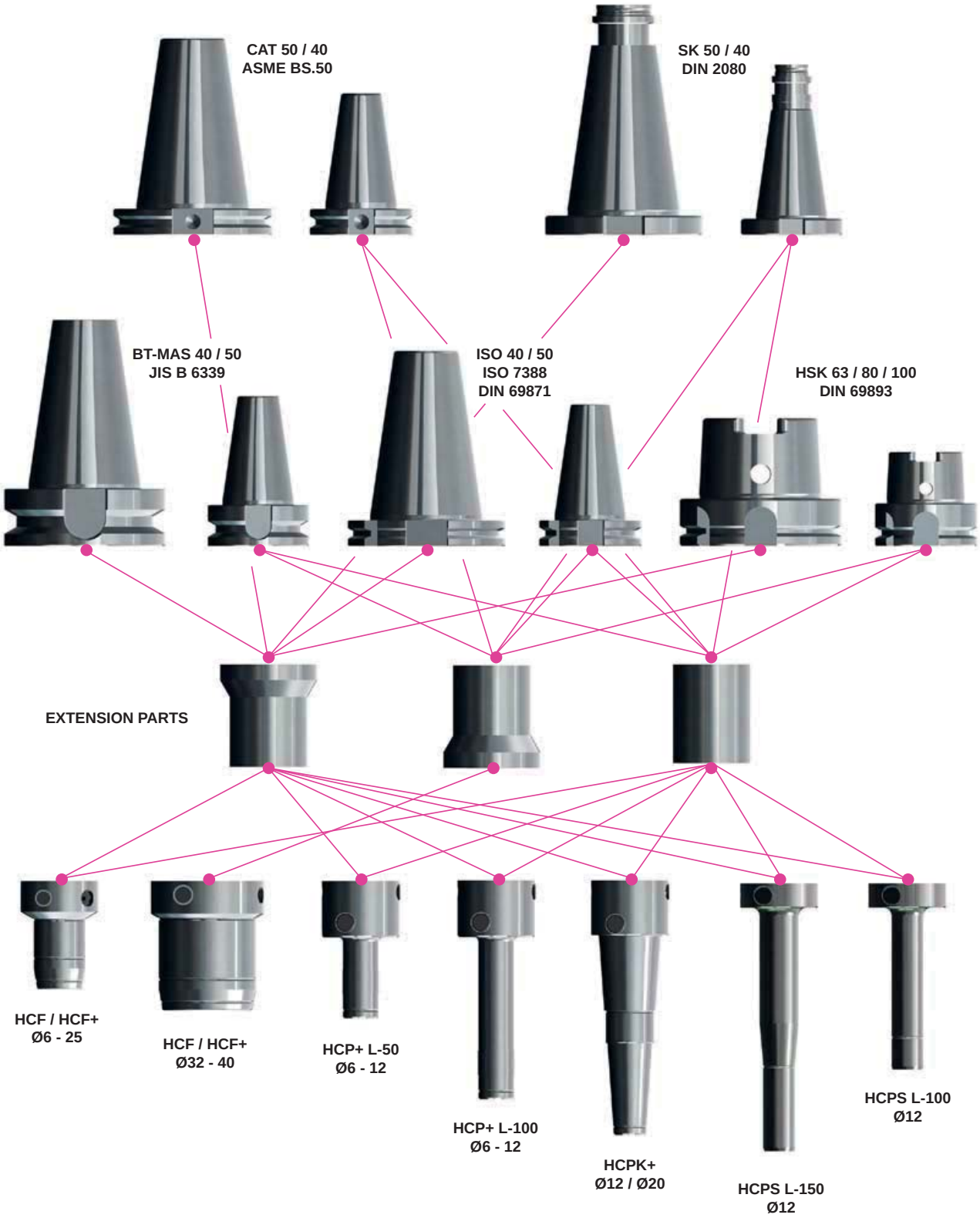
- Type HCP+
  Pen-chuck in two different lengths

- Type HCPK+
  Long tapered chuck

- Type HCK+
  Extra short chuck

- Type HCPS
  Extra long and slim pen-chuck

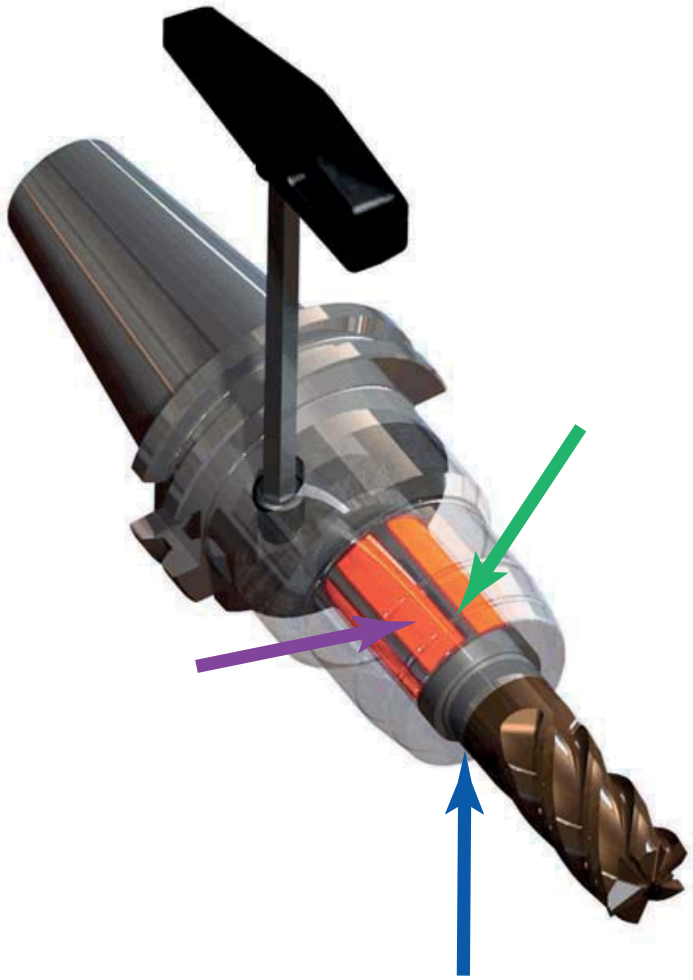
Optional combinations for our hydraulic chucks



The Plus-membrane [+]

Facts about SPV Spintec´s developed milling-membrane - The Plus-membrane [+]

SPV Spintec's hexagonal milling membrane (+membrane) permits though, vibration-free milling. A highly stable tool anchorage makes it possible to machine at greater feed rates and with greater axial and radial depths of cut than normally recommended.



Limitations of conventional hydraulic chucks

The limitation in the use of hydraulic chucks has frequently been the use of recommended cutting data for heavy duty milling.

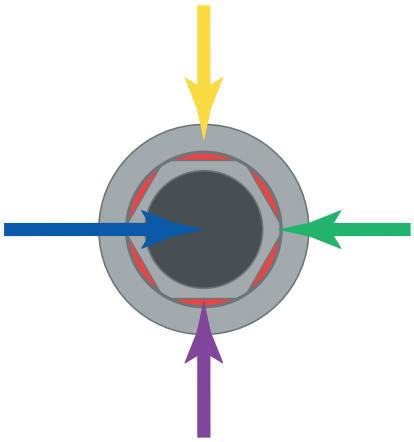
Customers have often been obliged to purchase specially shortened hydraulic milling chucks with increased torque when they have needed to remove a large amount of material in the shortest possible time.

We have eliminated this limitation and offer our customers the opportunity of using our developed hydraulic milling chuck for both drilling and milling, which offers better overall economy.

History of development

The development started when British Aerospace in England had problems with milling vibration, which lead to very short lifetime for their expensive solid metal cutting tools.

BA tried several commercially available retention systems but did not find a satisfactory solution. At that time SPV developed the hexagonal milling membrane which was found in tests at British Aerospace to multiply the period of contact several times over and in some cases, enabled them to double both radial and axial cutting depths.



Yellow arrow
Outer housing, hydraulic chuck

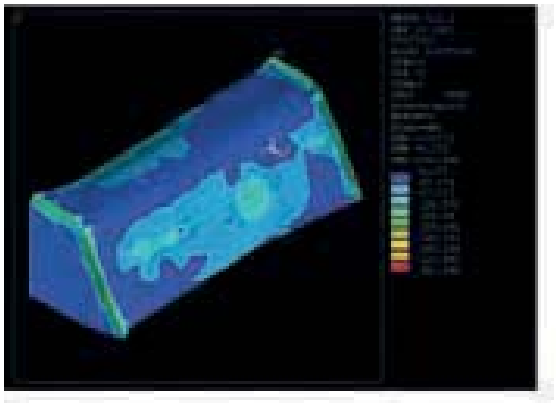
Blue arrow
Tool (drill, cutter, etc.)

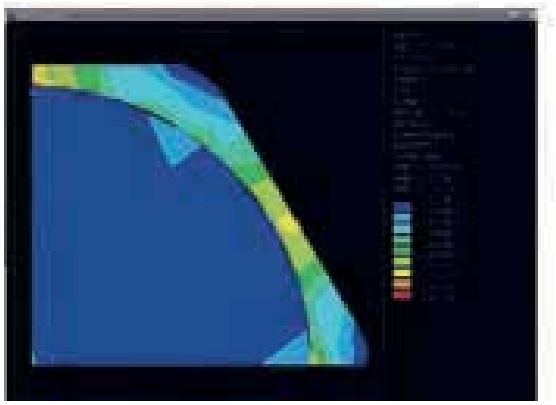
Purple arrow
Hydraulic chamber which combines with high hydraulic pressure in the chuck to provide stable anchorage, with long, linear, thinwall gripping surfaces which protect the tool from flexing.

Green arrow
The remaining material between the hydraulic chambers creates - reinforcement ribs - which minimise vibration and stiffen the membrane.

Analysis

A calculation and simulation of loading cases using the Finite Element Method (FEM) and 3D-models was done in collaboration with Mälardalen University College in Eskilstuna, Sweden to verify the results offered by the new design, and to make a comparison with the traditional cylindrical membrane design in hydraulic chucks.





Testing

A trial was done in the spring of 2003 at SECO in Fagersta, Sweden in an attempt to verify any limits there might be on cutting data. An extract from the test report (P-1006, 2003-04-29 at SECO, Fagersta) shows the following.

- Test sample:
  Hydraulic chucks, HCF+ with hexagonal membrane.
- Machining tools:
  Solid 3-blade hard metal cutters, made by Jabro, with Tribon coating in dimensions Ø10, Ø12 and Ø20 mm.
- Work piece material:
  Square bar, 75x75 mm made from heat treatable steel SS 2244-05, hardness 270 - 315 HB.

Test summary

The results show that the hydraulic chucks equipped with a hexagonal membrane (+membrane) can manage up to twice the recommended axial and radial cutting depth without tool chipping or vibration which affects surface finish. In practice, this means that the possible swarf yield has been multiplied by four.

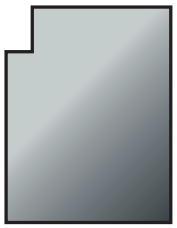
HCF+ chucks:

- Hydraulic chucks, HCF+, with tools Ø10, Ø12 and Ø20 can manage the the cutting data in Jabro's recommendation for coarse slab milling.
- 2 x recommended axial cutting depth is quite OK, without any vibration arising that could damage the tool.
- 2 x recommended radial cutting depth is quite OK.

Specifications

Coarse slab milling with rotational speed and feed rate to Jabro's recommendations:

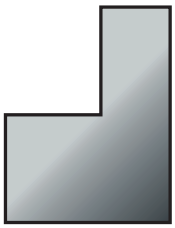
Recommended depth of cut:
axial = 1x tool diameter
radial = 0,4 x tool diameter



This gives a chip area of:
1 x D mm x 0,4 x D mm = 0,4 x D mm²

Coarse slab milling with rotational speed and feed rate to Jabro's recommendations:

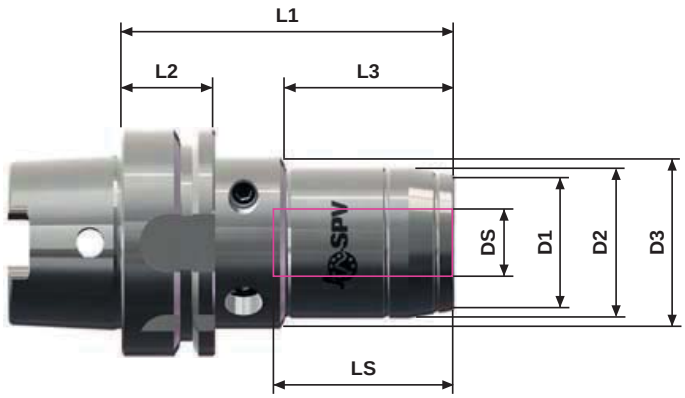
HCF+ test with twice the recommended depth of cut, axially and radially.



This gives a chip area of:
2 x D mm x 0,8 x D mm = 1,6 x D mm²

HSK-A

STANDARD CHUCK HCF / HCF+

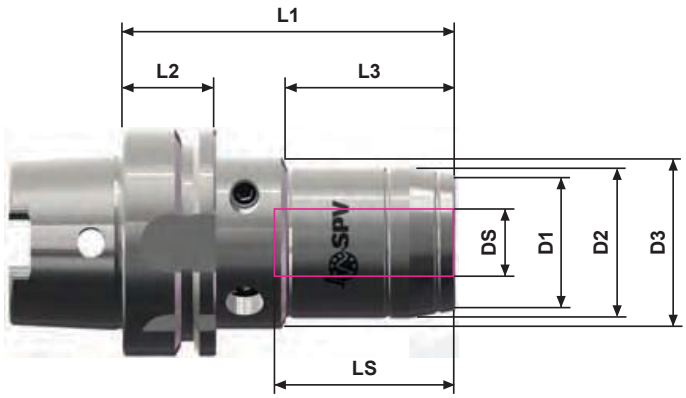


For milling-membrane (+) specify + after art.no.

DS Ømm	Mount type	D1 Ømm	D2 Ømm	D3 Ømm	L1 mm	L2 mm	L3 mm	LS mm	Article-number
6	HSK-A63	21,5	26	50	71,5	26	24,5	37,5	54870
	HSK-A80	21,5	26	48	127	26	43,5	37,5	56670
	HSK-A100	21,5	26	48	140	29	43,5	37,5	56680
8	HSK-A63	24	28	50	71,5	26	25,5	37,5	54871
	HSK-A80	23,5	28	48	127	26	43,5	37,5	56671
	HSK-A100	23,5	28	48	140	29	43,5	37,5	56681
10	HSK-A63	26	30	50	81,5	26	35,5	42,5	54872
	HSK-A80	25,5	30	48	127	26	43,5	42,5	56672
	HSK-A100	25,5	30	48	140	29	43,5	42,5	56682
12 *	HSK-A40	28	32	42	94,5	20	41,5	47,5	54853
	HSK-A50	28	32	42	86,5	26	43,5	47,5	54863
	HSK-A63	28	32	50	86,5	26	41,5	47,5	54873
	HSK-A80	27,5	32	48	127	26	44,5	47,5	56673
	HSK-A100	27,5	32	48	140	29	44,5	47,5	56683
14	HSK-A63	30	34	50	86,5	26	41,5	47,5	54874
	HSK-A80	29,5	34	48	127	26	44,5	47,5	56674
	HSK-A100	29,5	34	48	140	29	44,5	47,5	56684
16	HSK-A63	34	38	50	91,5	26	48	52,5	54875
	HSK-A80	33,5	38	48	127	26	47,5	52,5	56675
	HSK-A100	33,5	38	48	140	29	47,5	52,5	56685
18	HSK-A63	35,5	40	50	91,5	26	48,5	52,5	54876
	HSK-A80	35,5	40	48	127	26	47,5	52,5	56676
	HSK-A100	35,5	40	48	140	29	47,5	52,5	56686

* Dimensions that can be used with reduction sleeves.
(Reduction sleeves, see p.40.)

STANDARD CHUCK HCF / HCF+



*For milling-membrane (+) specify **+** after art.no.*

DS Ømm	Mount type	D1 Ømm	D2 Ømm	D3 Ømm	L1 mm	L2 mm	L3 mm	LS mm	Article-number
20 *	HSK-A50	37,5	42	48	91,5	26	47,5	52,5	**54867**
	HSK-A63	37,5	42	48	91,5	26	49,5	52,5	**54877**
	HSK-A80	37,5	42	48	127	26	47,5	52,5	**56677**
	HSK-A100	37,5	42	48	145	29	47,5	52,5	**56687**
25	HSK-A63	43,5	48	48	121	26	51,5	55	**54878**
	HSK-A80	43,5	48	48	131	26	51,5	55	**56678**
	HSK-A100	43,5	48	48	144	29	51,5	55	**56688**
32 *	HSK-A63	55,5	60	70	126	26	57	65	**54879**
	HSK-A80	55,5	60	70	140	26	57	65	**56679**
	HSK-A100	55,5	60	70	153	29	57	65	**56689**
40 **	HSK-A100	65	70	70	158	29	42	70	**56120+**

* Dimensions that can be used with reduction sleeves.
(Reduction sleeves, see p.40.)
** Ø40 is only available with ISO-50 and milling-membrane (+).

Other dimensions with HSK-40 and HSK-50 on request.

We also manufacture other types of HSK-mounts. Contact us for more info.

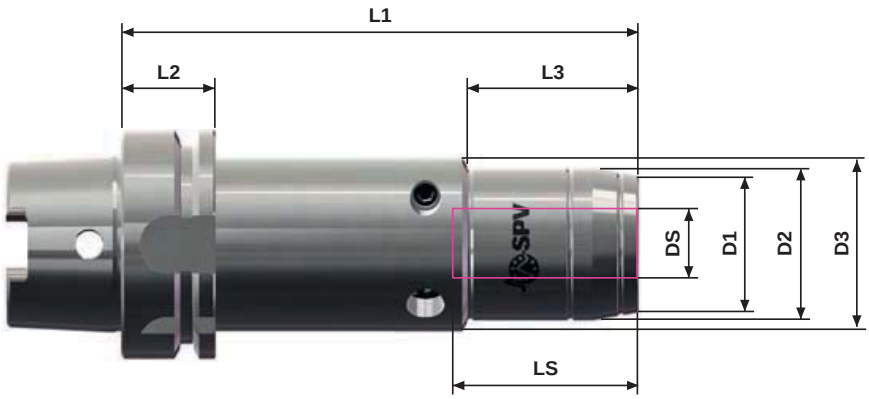
HSK-C

HSK-E

HSK-F

HSK-A

EXTENDED STANDARD CHUCK HCFL / HCFL+



For milling-membrane (+) specify + after art.no.

DS Ømm	Mount type	D1 Ømm	D2 Ømm	D3 Ømm	L1 mm	L2 mm	L3 mm	LS mm	Article-number
6	HSK-A63	21,5	26	48	140	26	43,5	37,5	56660
	HSK-A63	21,5	26	48	140-515	26	43,5	37,5	▲
	HSK-A80	21,5	26	48	167	26	43,5	37,5	56690
	HSK-A80	21,5	26	48	167-510	26	43,5	37,5	▲
	HSK-A100	21,5	26	48	180	29	43,5	37,5	56760
	HSK-A100	21,5	26	48	180-500	29	43,5	37,5	▲
8	HSK-A63	23,5	28	48	140	26	43,5	37,5	56661
	HSK-A63	23,5	28	48	140-515	26	43,5	37,5	▲
	HSK-A80	23,5	28	48	167	26	43,5	37,5	56691
	HSK-A80	23,5	28	48	167-510	26	43,5	37,5	▲
	HSK-A100	23,5	28	48	180	29	43,5	37,5	56761
	HSK-A100	23,5	28	48	180-500	29	43,5	37,5	▲
10	HSK-A63	25,5	30	48	140	26	43,5	42,5	56662
	HSK-A63	25,5	30	48	140-515	26	43,5	42,5	▲
	HSK-A80	25,5	30	48	167	26	43,5	42,5	56692
	HSK-A80	25,5	30	48	167-510	26	43,5	42,5	▲
	HSK-A100	25,5	30	48	180	29	43,5	42,5	56762
	HSK-A100	25,5	30	48	180-500	29	43,5	42,5	▲
12	HSK-A63	27,5	32	48	140	26	44,5	47,5	56663
	HSK-A63	27,5	32	48	140-515	26	44,5	47,5	▲
	HSK-A80	27,5	32	48	167	26	44,5	47,5	56693
	HSK-A80	27,5	32	48	167-510	26	44,5	47,5	▲
	HSK-A100	27,5	32	48	180	29	44,5	47,5	56764
	HSK-A100	27,5	32	48	180-500	29	44,5	47,5	▲
14	HSK-A63	29,5	34	48	140	26	44,5	52,5	56665
	HSK-A63	29,5	34	48	140-515	26	44,5	52,5	▲
	HSK-A80	29,5	34	48	167	26	44,5	52,5	56695
	HSK-A80	29,5	34	48	167-510	26	44,5	52,5	▲
	HSK-A100	29,5	34	48	180	29	44,5	52,5	56765
	HSK-A100	29,5	34	48	180-500	29	44,5	52,5	▲

EXTENDED STANDARD CHUCK HCFL / HCFL+

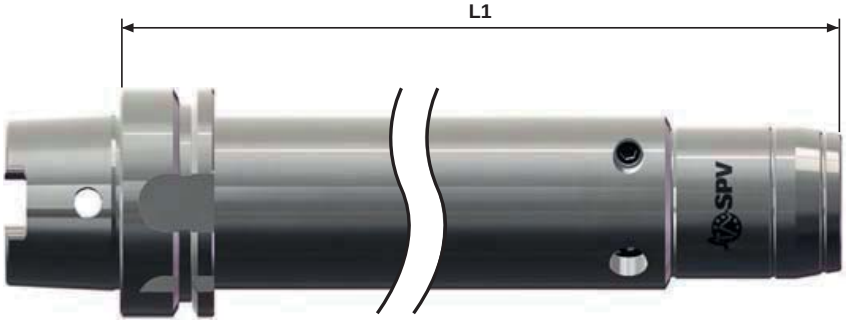
For milling-membrane (+) specify + after art.no.

DS Ømm	Fäste typ	D1 Ømm	D2 Ømm	D3 Ømm	L1 mm	L2 mm	L3 mm	LS mm	Article-number
16	HSK-A63	33,5	38	48	140	26	47,5	52,5	56665
	HSK-A63	33,5	38	48	140-515	26	47,5	52,5	▲
	HSK-A80	33,5	38	48	167	26	47,5	52,5	56695
	HSK-A80	33,5	38	48	167-510	26	47,5	52,5	▲
	HSK-A100	33,5	38	48	180	29	47,5	52,5	56765
	HSK-A100	33,5	38	48	180-500	29	47,5	52,5	▲
18	HSK-A63	35,5	40	48	140	26	47,5	52,5	56666
	HSK-A63	35,5	40	48	140-515	26	47,5	52,5	▲
	HSK-A80	35,5	40	48	167	26	47,5	52,5	56696
	HSK-A80	35,5	40	48	167-510	26	47,5	52,5	▲
	HSK-A100	35,5	40	48	180	29	47,5	52,5	56766
	HSK-A100	35,5	40	48	180-500	29	47,5	52,5	▲
20 *	HSK-A63	37,5	42	48	140	26	47,5	52,5	56667
	HSK-A63	37,5	42	48	140-515	26	47,5	52,5	▲
	HSK-A80	37,5	42	48	167	26	47,5	52,5	56697
	HSK-A80	37,5	42	48	167-510	26	47,5	52,5	▲
	HSK-A100	37,5	42	48	180	29	47,5	52,5	56767
	HSK-A100	37,5	42	48	180-500	29	47,5	52,5	▲
25	HSK-A63	43,5	48	48	144	26	118	55	56668
	HSK-A63	43,5	48	48	144-515	26	---	55	▲
	HSK-A80	43,5	48	48	171	26	145	55	56698
	HSK-A80	43,5	48	48	171-510	26	---	55	▲
	HSK-A100	43,5	48	48	184	29	155	55	56468
	HSK-A100	43,5	48	48	184-500	29	---	55	▲
32 *	HSK-A63	55,5	60	70	193	26	57	65	56669
	HSK-A63	55,5	60	70	153-515	26	57	65	▲
	HSK-A80	55,5	60	70	180	26	57	65	56699
	HSK-A80	55,5	60	70	180-510	26	57	65	▲
	HSK-A100	55,5	60	70	193	29	57	65	56769
	HSK-A100	55,5	60	70	193-500	29	57	65	▲

* Dimensions that can be used with reduction sleeves.
(Reduction sleeves, see p.40.)

▲ Depending on desired length (L1). Specify art.no / L1 on order.

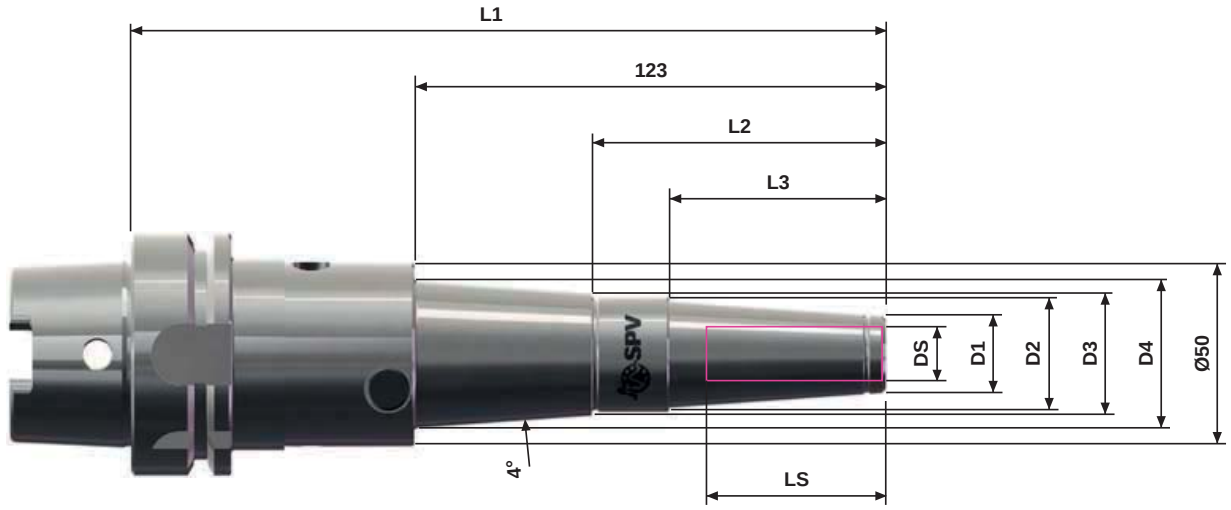
HCFL / HCFL+ IN ANY LENGTH



Ordering example: HSK-63, Ø20, L1 = 300 mm, type HCFL+ Artikle number: 56677+/300

HSK-A

TAPERED, LONG CHUCK WITH MILLING-MEMBRANDE HCPK+

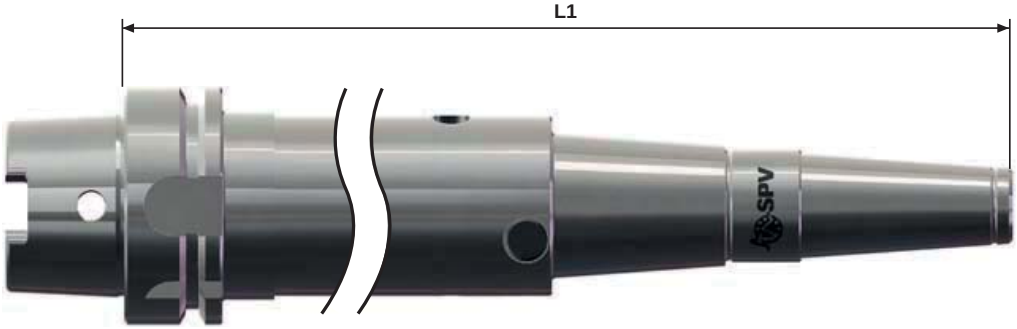


DS Ømm	Mount type	D1 Ømm	D2 Ømm	D3 Ømm	D4 Ømm	L1 mm	L2 mm	L3 mm	LS mm	Article-number
12 *	HSK-A63	20	30	32	40,5	197	76,8	57	44	54103+
	HSK-A63	20	30	32	40,5	237-515	76,8	57	44	▲
	HSK-A80	20	30	32	40,5	217	76,8	57	44	54113+
	HSK-A80	20	30	32	40,5	257-510	76,8	57	44	▲
	HSK-A100	20	30	32	40,5	230	76,8	57	44	54123+
	HSK-A100	20	30	32	40,5	270-500	76,8	57	44	▲
20 *	HSK-A63	32	39	42	50,5	197	74,8	55	52	54107+
	HSK-A63	32	39	42	50,5	237-515	74,8	55	52	▲
	HSK-A80	32	39	42	50,5	217	74,8	55	52	54117+
	HSK-A80	32	39	42	50,5	257-510	74,8	55	52	▲
	HSK-A100	32	39	42	50,5	230	74,8	55	52	54127+
	HSK-A100	32	39	42	50,5	270-500	74,8	55	52	▲

* Dimensions that can be used with reduction sleeves.
(Reduction sleeves, see p.40.)

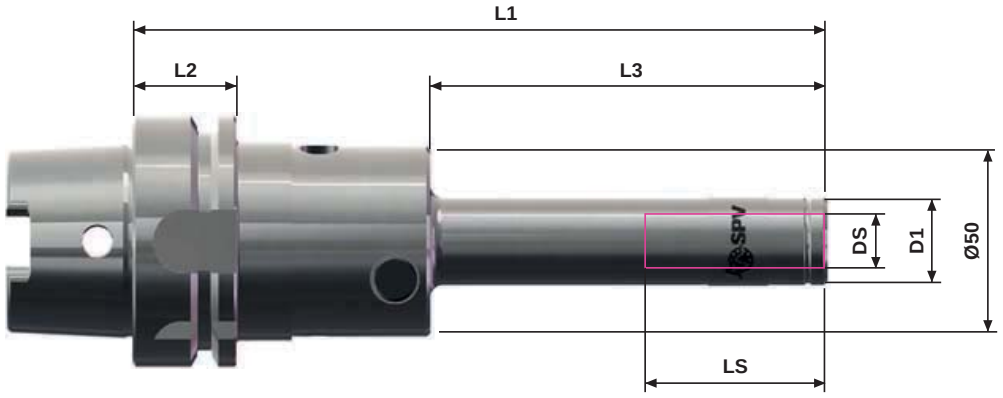
▲ Depending on desired length (L1). Specify art.no / L1 on order.

HCPK+ IN ANY LENGTH



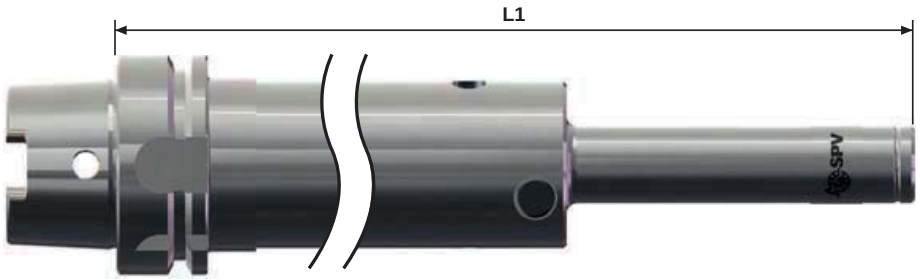
Ordering example: HSK-40, Ø20, L1 = 297 mm, type HCPK+ Article number: 54107+/297

PEN-CHUCK WITH MILLING-MEMBRANE HCP+



DS Ømm	Mount type	D1 Ømm	L1 mm	L2 mm	L3 mm	LS mm	Article-number
6	HSK-A63	22,5	125	26	50	37,5	59300+
	HSK-A63	22,5	175	26	100	37,5	59310+
	HSK-A80	22,5	145	26	50	37,5	59235+
	HSK-A80	22,5	195	26	100	37,5	59240+
	HSK-A100	22,5	158	29	50	37,5	59350+
	HSK-A100	22,5	208	29	100	37,5	59360+
8	HSK-A63	22,5	125	26	50	37,5	59301+
	HSK-A63	22,5	175	26	100	37,5	59311+
	HSK-A80	22,5	145	26	50	37,5	59237+
	HSK-A80	22,5	195	26	100	37,5	59242+
	HSK-A100	22,5	158	29	50	37,5	59351+
	HSK-A100	22,5	208	29	100	37,5	59361+
10	HSK-A63	22,5	125	26	50	42,5	59302+
	HSK-A63	22,5	175	26	100	42,5	59312+
	HSK-A80	22,5	145	26	50	42,5	59237+
	HSK-A80	22,5	195	26	100	42,5	59242+
	HSK-A100	22,5	158	29	50	42,5	59352+
	HSK-A100	22,5	208	29	100	42,5	59362+
12 *	HSK-A63	22,5	125	26	50	44	59303+
	HSK-A63	22,5	175	26	100	44	59313+
	HSK-A80	22,5	145	26	50	44	59238+
	HSK-A80	22,5	195	26	100	44	59243+
	HSK-A100	22,5	158	29	50	44	59353+
	HSK-A100	22,5	208	29	100	44	59363+

* Dimensions that can be used with reduction sleeves. (Reduction sleeves, see p.40.)



HCP+ IN ANY LENGTH

Ordering example:

BT-40, Ø20, L1 = 285 mm,

type HCPK+

Art.no: 59147+/285

HSK-A

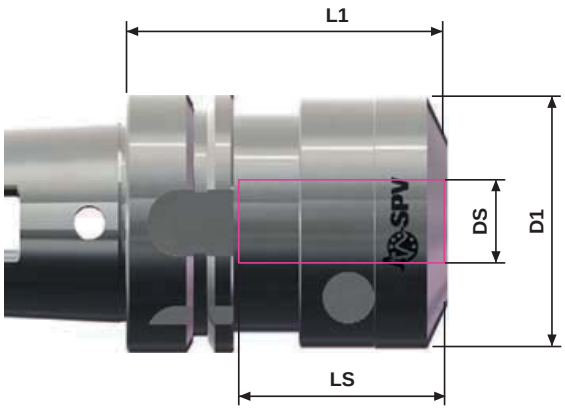
EXTRA LONG, SLIM PEN-CHUCK HCPS

DS Ømm	Mount type	D1 Ømm	D2 Ømm	D3 Ømm	L1 mm	L2 mm	L3 mm	LS mm	Article-number
12 *	HSK-A63	19,5	----	48	155	100	----	42	59643
	HSK-A80	19,5	----	48	175	100	----	42	59653
	HSK-A100	19,5	----	48	188	100	----	42	59663
12 *	HSK-A63	19,5	24	48	205	150	52	42	59743
	HSK-A80	19,5	24	48	225	150	52	42	59753
	HSK-A100	19,5	24	48	238	150	52	42	59763

* Dimensions that can be used with reduction sleeves.
(Reduction sleeves, see p.40.)

Also available as extended chuck. Contact us for more info.

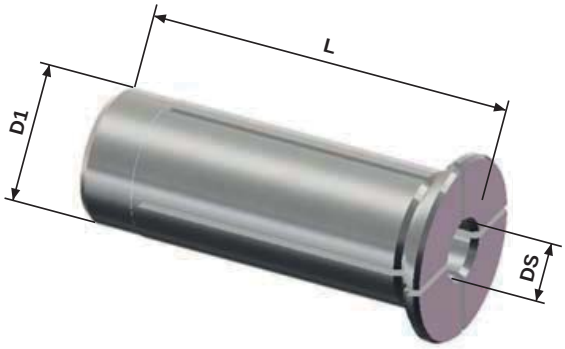
EXTRA SHORT MILLING-CHUCK WITH MILLING-MEMBRANE HCK+



DS Ømm	Mount type	D1 Ømm	L1 mm	LS mm	Article-number
20	HSK-A63	61	78	51,8	66109+
32	HSK-A63	82	88	61,8	66111+

Reduction sleeves HC

Cylindrical reduction sleeves for hydraulic chucks



Sealed sleeve with rubber stop.

Sleeves can be converted to unsealed by removing the rubber stop.

Other dimensions on request.

REDUCTION SLEEVES D = mm

D Ømm	DS Ømm	L mm	Article-number
12	3	44	90003
	4	44	90004
	5	44	90005
	6	44	90006
	8	44	90008
	10	44	90010
20	3	50	90103
	4	50	90104
	5	50	90105
	6	50	90106
	8	50	90108
	10	50	90110
	12	50	90112
	14	50	90114
	16	50	90116
32	6	63	90206
	8	63	90208
	10	63	90210
	12	63	90212
	14	63	90214
	16	63	90216
	18	63	90218
	20	63	90220
	25	63	90225

REDUCTION SLEEVES D = inch

D Ømm	DS Ømm	L mm	Article-number
3/4”	1/8”		67960
	5/32”		67961
	3/16”		67962
	1/4”		67963
	5/16”		67964
	3/8”		67965
	7/16”		67966
	1/2”		67967
	9/16”		67968
	5/8”		67969
1 1/4”	3/8”		67980
	1/2”		67981
	5/8”		67982
	3/4”		67983
	1”		67984

We also provide sleeves with custom clamping diameter (DS) on request.

Operating instructions

1. Working temperature

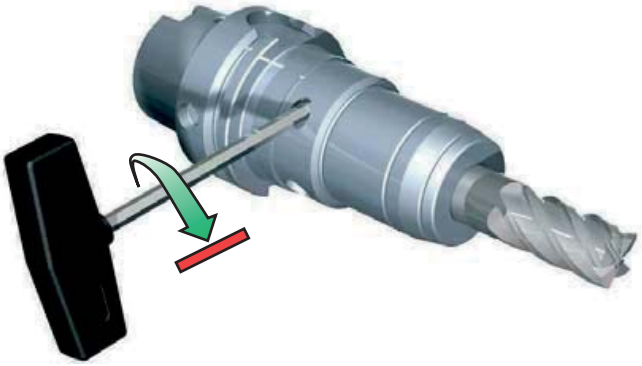
Ideal and optimised working temperature is between 20° och 50 ° C. Do not store hydraulic chucks where the temperature could exceed 50 ° C.

2. Cleaning

It is very important that both the tool shank and the inside of the chuck are free from grease and other contamination. Use an alcohol based degreaser.

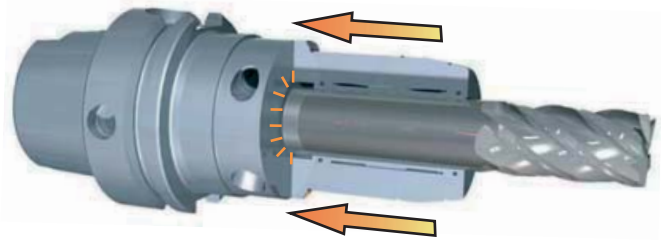
3. Tightening the membrane

The screw must always be tightened to the fixed stop. Never tighten the screw without a tool in the chuck, since there is a risk that the hydraulic chamber could be deformed.



4. Tool insertion length

The tool must be inserted to a fixed stop, to prevent the hydraulic chamber from being deformed by the pressure. When reduction sleeves are used, at least 60% of the length of the tool shank must be used.



5. Service and repair

If you experience that your hydraulic chuck doesn´t clamp properly, this can be due to several things. A common explanation is that the hydraulic piston seal is worn out. We always perform service on our hydraulic chucks. Contact us for more information.

Important information about tool-shanks.

- Standard chucks - ***type HCF / HCFL / HCPS***

  In standard chucks from Ø6 up to Ø20, Weldon-shanks can be used directly in the chucks. Shank tolerance h6.

- Chucks with milling-membrane [+] - ***type HCF+ / HCFL+ / HCP+ / HCPK+ / HCK+***

  In chucks with milling membrane (+) only cylindrical shanks can be used directly in the chuck. Shank tolerance h6.

- Other types of tool-shanks - ***all except HCK+***

  Other types of tool shank such as Weldon, Whistlenotch can be used in combination with a reduction sleeve in the chuck.

Torque-table

Tool diameter ØDS mm	HCF / HCF+	HCK+	HCP+	HCPK+	HCPS
6	15 Nm		15 Nm		
8	20 Nm		20 Nm		
10	40 Nm		40 Nm		
12	80 Nm		80 Nm	80 Nm	80 Nm
14	110 Nm				
16	130 Nm				
18	190 Nm				
20	320 Nm	600 Nm		320 Nm	
25	400 Nm				
32	650 Nm	1 200 Nm			
40	1 200 Nm				

WARNING!
Disassembling and assembling a hydraulic chuck requires special tools and equipment. Always send the chuck to SPV Spintec representative if it needs to be repaired.

Customized hydraulic chucks

HYDRAULIC CHUCKS IN CUSTOMIZED SPECIAL APPEARANCES

SPV Spintec also manufactures hydraulic chucks in fully customized versions for e.g. odd machines that are not equipped with a standard spindle. We meet the customers demands by designing and developing special chucks which fit the customers application. We manufacture special chucks for both internal and external clamping. The chucks can be designed for holding a tool or as a fixture for accurate clamping of a workpiece.