

Beknopte Catalogus; **Hassay Savage** Drukfrezen

Concept

v2024-5

NLD-ENG-TBH-02

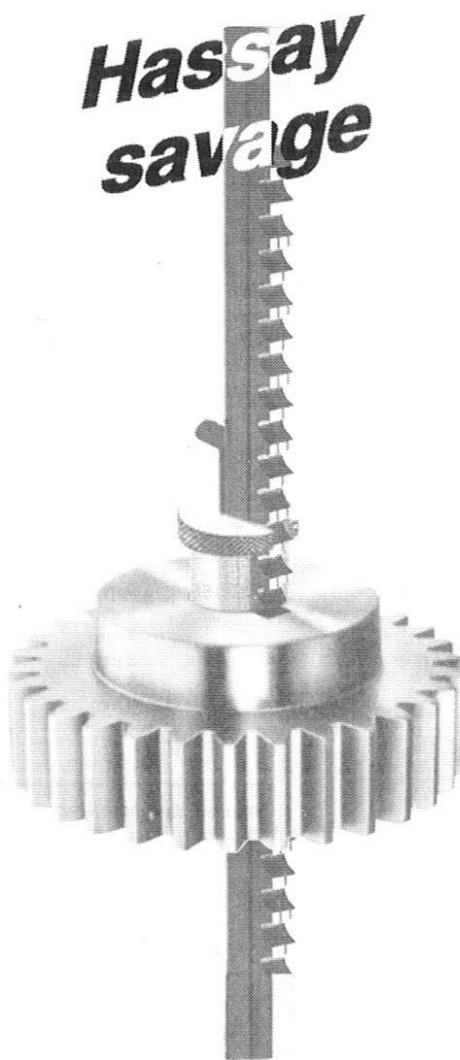


Onderstaande tabel geeft een overzicht welke spiebaanbreedte standaard bij welk gatdiameter thuishoort volgens DIN 6885, met daarbij de rugbreedte van de drukfrees en bus. * **SPECIAAL BUSSEN OF FREZEN** voor overmaatse of ondermaatse spieën verkrijgbaar.

There is a review of which cutting width belongs to which hole diameter according to DIN 6885, with the back width of the broaches and bushings, mentioned in the table below. * **SPECIAL Bushings and broaches** can be supplied on request.

**METRIC SIZES
BROACHES AND BUSHINGS
METRISCHE MATEN
SPIEBAANDRUKFREZEN EN BUSSEN**

HOLE DIAMETER	BROACH WIDTH	STANDARD BACK WIDTH
DIAMETER GAT	SPIEBAAN BREEDTE	RUGBREEDTE STANDAARD
6 7 8	2	I
9 10	3	I
11 12 13	4	II
14 15 16 * 17 (III)	5	II * (III)
* 18 (II) * 19 (II) 20 22	6	III
24 25 26 27 28 30	8	III
* 32 (III) * 34 (III) * 35 (III) * 36 (III) 38	10	IV
40 42 44	12	IV
45 46 48 * 50 (V)	14	IV
* 52 (IV) * 54 (IV) * 55 (IV) 56 58	16	V
60 62 64 65	18	V
70 75	20	VI
80 85	22	VI * (24)
90 95	25	VI
100 105 110 115	28	VI



**INCH SIZES
BROACHES AND BUSHINGS
INCH MATEN
SPIEBAANDRUKFREZEN EN BUSSEN**

HOLE DIAMETER	BROACH WIDTH	STANDARD BACK WIDTH
DIAMETER GAT	SPIEBAAN BREEDTE	RUGBREEDTE STANDAARD
1/4 5/16	1/16	I
3/8 7/16	3/32	I * (II)
1/2 9/16	1/8	II * (I)
9/16 5/8	5/32	II
5/8 11/16 * 3/4 (III) * 13/16 (III) * 7/8 (III)	3/16	II * (III)
15/16 1 1.1/16 1.1/8 1.3/16 1.1/4	1/4	III
1.5/16 1.3/8	5/16	III * (IV)
* 1.7/16 (IV) * 1.1/2 (IV) * 1.9/16 (IV) 1.5/8 1.11/16 1.3/4	3/8	III * (IV)
1.11/16 1.3/4 1.13/16 1.7/8	7/16	IV
1.13/16 1.7/8 1.15/16 2 2.1/16 2.1/8 2.3/16 2.1/4	1/2	IV
* 2.5/16 (IV) * 2.3/8 (IV) * 2.7/16 (IV) * 2.1/2 (IV) * 2.5/8 (IV) * 2.3/4 (IV)	5/8	V
* 2.7/8 (IV) * 2.15/16 (IV) * 3 (IV) 3.1/2 3.1/4	3/4	V
GROTERE BUSSEN OP AANVRAAG	7/8, 1, 1.1/8, 1.1/4 1.3/8, 1.1/2	VI

VOORDELEN VAN DRUKFREZEN:

- geen dure machine nodig, echter een universeel bruikbare brootpers.
- spiebanen zuiver op maat, nauwkeurigheid gecentreerd volgens DIN-normen.
- economisch, voor zowel een enkele spiebaan als voor seriewerk.
- één frees voor verschillende soorten materiaal, o.a. staal, gietijzer, aluminium, messing, etc.
- ongeschoolde krachten kunnen nauwkeurig spiebanen frezen.

ADVANTAGES OF BROACHES:

- no expensive equipment required, only a broachpress.
- very high accuracy according to DIN specifications.
- economic, for only one, but also for several keyways.
- only one broach required for several materials, such as steel, cast iron, aluminium, bronze, etc.
- low educated personal is able to broach high accuracy keyways.

Standaard worden de drukfrees geleverd in kwaliteitslegering M2 met spaanhoek $\pm 15^\circ$.
Afwijkende type, kwaliteiten, passingen en spaanhoeken voor seriewerk op aanvraag

**Standaardset METRISCHE DRUKFREZEN.**

2 drukfrezes, 5 bussen **zonder kraag**, 10 spiebaankombinaties.
in plastic koffer, gewicht 0,5 kg.

SET HSS PRECISION KEYWAY BROACHE SET WITH METRIC SIZES.

Set of 2 broaches and 5 plain bushings, to make 10 different combinations,
in plastic case. Weight 0,5 kgs.

Code	Keyway size Spiebaan breedte	Type	Bushing diam. Bus diam.mm	No.of combinations Aantal combinaties
15410	2 mm	I	6 - 7 - 8	10
	3 mm	I	9 - 10	

**Standaardset METRISCHE DRUKFREZEN.**

4 drukfrezes, 9 bussen **met kraag**, 18 spiebaankombinaties,
in plastic koffer, gewicht 3,9 kg.

SET HSS PRECISION KEYWAY BROACHE SET WITH METRIC SIZES.

Set of 4 broaches and 9 collar bushings, to make 18 different combinations,
in plastic case. Weight 3,9 kgs.

Code	Keyway size Spiebaan breedte	Type	Bushing diam. Bus diam.mm	No.of combinations Aantal combinaties
15418	4 mm	II	12 - 14	18
	5 mm	II	16 - 18	
	6 mm	III	20 - 22	
	8 mm	III	24 - 26 - 28	

**Standaardset METRISCHE DRUKFREZEN.**

6 drukfrezes, 18 bussen **met kraag**, 36 spiebaankombinaties,
in plastic koffer. Gewicht 4,5kg.

SET HSS PRECISION KEYWAY BROACHE SET WITH METRIC SIZES.

Set of 6 broaches and 18 collar bushings, to make 36 different combinations,
in plastic case. Weight 4,5 kgs.

Code	Keyway size Spiebaan breedte	Type	Bushing diam. Bus diam.mm	No.of combinations Aantal combinaties
15440	2 mm	I	8 - 10	36
	3 mm	I		
	4 mm	II	12 - 14	
	5 mm	II	16 - 18	
	6 mm	III	18 - 19 - 20	
	8 mm	III	22 - 24 - 25	
			26 - 28 - 30	
			32 - 34 - 36	

**Standaardset METRISCHE DRUKFREZEN.**

3 drukfrezes, 8 bussen **zonder kraag**, 24 spiebaankombinaties.
gewicht 16,2 kg.

SET HSS PRECISION KEYWAY BROACHE SET WITH METRIC SIZES.

Set of 3 broaches and 8 plain bushings, to make 24 different combinations,
in wooden case. Weight 16,2 kgs.

Code	Keyway size Spiebaan breedte	Type	Bushing diam. Bus diam.mm	No.of combinations Aantal combinaties
15224	10 mm	IV	34 - 36	24
	12 mm	IV	38 - 40 - 42	
	14 mm	IV	44 - 46 - 48	

**Standaardset METRISCHE DRUKFREZEN.**

2 drukfrezes, 6 bussen **zonder kraag**, 12 spiebaankombinaties.
gewicht 31,5 kg.

SET HSS PRECISION KEYWAY BROACHE SET WITH METRIC SIZES.

Set of 2 broaches and 6 plain bushings, to make 12 different combinations,
in wooden case. Weight 31,5 kgs.

Code	Keyway size Spiebaan breedte	Type	Bushing diam. Bus diam.mm	No.of combinations Aantal combinaties
15212	16 mm	V	54 - 56 - 58	12
	18 mm	V	60 - 62 - 64	

Code	A	B	C	D	E	F	G
11102	2-I	1,998-2,011	3,18x133,5	0	5,16	28,58	229
11103	3-I	2,999-3,012	3,18x133,5	1	5,16	28,58	324
11204	4-II	4,0-4,013	6,35x177,8	1	7,54	42,86	513
11205	5-II	4,998-5,011	6,35x177,8	1	7,54	42,86	918
11305	5-III	4,998-5,011	9,53x301,63	1	10,32	63,5	756
11306	6-III	5,999-6,012	9,53x301,63	1	10,32	63,5	851
11307	7-III	7,0-7,013	9,53x301,63	1	10,32	63,5	1344
11308	8-III	8,001-8,013	9,53x301,63	1	10,32	63,5	1798
11410	10-IV	9,999-10,012	14,29x352,43	2	19,05	152,4	3645
11412	12-IV	11,998-12,014	14,29x352,43	2	19,05	152,4	4748
11414	14-IV	14,0-14,018	14,29x352,43	2	19,05	152,4	4991
11516	16-V	15,999-16,017	19,05x387,35	3	19,05	152,4	5119
11518	18-V	18,000-18,016	19,05x387,35	3	19,05	152,4	5400
11620	20-VI	19,999-20,022	25,4x488,85	3	19,05	152,4	4950
11622	22-VI	21,998-22,019	25,4x488,85	4	19,05	152,4	4950
11624	24-VI	24,0-24,023	25,4x488,85	4	19,05	152,4	5884
11625	25-VI	24,998-25,021	25,4x488,85	4	19,05	152,4	5974
11728	28-VII	28,016-28,041	28,57x584,2	5	19,05	152,4	6615
11830	30-VIII	30,015-30,040	31,75x584,2	5	19,05	152,4	6615
11832	32-VIII	32,016-32,042	31,75x584,2	5	19,05	152,4	6615
11936	36-IX	36,017-36,042	36,51x584,2	5	19,05	152,4	6615

A: Spiebreedte mm + type frees.
 B: Spiebaanbreedte toleranties mm.
 C: Drukrees afmetingen mm.
 D: Aantal vulplaatjes.
 E: Min. snij lengte mm.
 F: Max. snij lengte mm.
 G: Aanbevolen persdruk Kgf

A: Cutting width key mm+type broach.
 B: Keyway width tolerance mm.
 C: Dimensions of broach mm.
 D: No. of shims.
 E: Min. cutting length mm.
 F: Max. cutting length mm.
 G: Pressure required Kgf

**HSS PRECISIE SPIEBAAN DRUKFREZEN
 METRISCHE MATEN
 INCLUSIEF VULPLAATJES.**
 Met toleranties volgens ISO J9. (standaard)

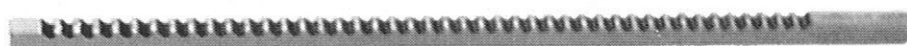
**HSS PRECISION KEYWAY BROACHES
 METRIC SIZES INCLUDING SHIMS.**
 With tolerances ISO J9. (standard)



	A	B	C	D	E	F	G
11102-P9	2-I	1,976-1,988	3,18x133,5	0	5,16	28,58	229
11103-P9	3-I	2,976-2,989	3,18x133,5	1	5,16	28,58	324
11204-P9	4-II	3,970-3,982	6,35x177,8	1	7,54	42,86	513
11205-P9	5-II	4,970-4,983	6,35x177,8	1	7,54	42,86	918
11305-P9	5-III	4,970-4,983	9,53x301,63	1	10,32	63,5	756
11306-P9	6-III	5,969-5,981	9,53x301,63	1	10,32	63,5	851
11308-P9	8-III	7,967-7,980	9,53x301,63	1	10,32	63,5	1798
11410-P9	10-IV	9,966-9,979	14,29x352,43	2	19,05	152,4	3645
11412-P9	12-IV	11,963-11,976	14,29x352,43	2	19,05	152,4	4748
11414-P9	14-IV	13,964-13,977	14,29x352,43	2	19,05	152,4	4991
11516-P9	16-V	15,951-15,964	19,05x387,35	3	19,05	152,4	5119
11518-P9	18-V	17,957-17,970	19,05x387,35	3	19,05	152,4	5400
11620-P9	20-VI	19,951-19,964	25,4x488,85	3	19,05	152,4	4950
11622-P9	22-VI	21,953-21,966	25,4x488,85	4	19,05	152,4	4950
11624-P9	24-VI	23,952-23,965	25,4x488,85	4	19,05	152,4	5884
11625-P9	25-VI	24,953-24,966	25,4x488,85	4	19,05	152,4	5974

**HSS PRECISIE SPIEBAAN DRUKFREZEN
 METRISCHE MATEN
 INCLUSIEF VULPLAATJES.**
 Met toleranties volgens ISO P9. (speciaal),
 vaste spie passing.

**HSS PRECISION KEYWAY BROACHES
 METRIC SIZES INCLUDING SHIMS.**
 With tolerances ISO P9. (special)



Code	A	B	C	D	E	F	G
11103.C	3-I	3,00-3,025	3,18x216,0	0	5,16	28,58	324
11204.C *	4-II	4,00-4,03	6,35x273,0	0	7,54	42,86	513
11205.C *	5-II	5,00-5,03	6,35x273,0	0	7,54	42,86	918
11306.C *	6-III	6,00-6,03	9,53x470,0	0	10,32	63,5	851
11308.C *	8-III	8,00-8,036	9,53x470,0	0	10,32	63,5	1798
11410.C *10-IV		10,00-10,036	14,29x750,0	0	19,05	152,4	3645
11412.C *12-IV		12,00-12,043	14,29x750,0	0	19,05	152,4	4748
11414.C *14-IV		14,00-14,043	14,29x750,0	0	19,05	152,4	4991

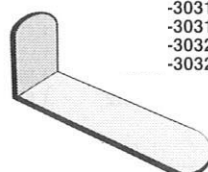
**HSS PRECISIE SPIEBAAN DRUKFREZEN
 1 DOORGANG - METRISCHE MATEN**
 Met toleranties volgens ISO H9,
 schuif spie passing

**HSS PRECISION KEYWAY BROACHES
 ONE PASS- METRIC SIZES**
 With tolerances ISO H9.

* met afbraam aanschuining

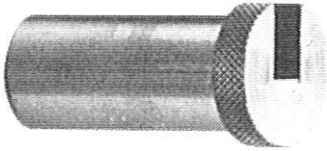
**EXTRA VULPLAATJES VOOR METRISCHE SPIEBAANDRUKFREZEN
 SPARE SHIMS FOR METRIC KEYWAY BROACHES**

Code	Broach/ Drukrees	Type	Code	Broach/ Drukrees	Type
31103	3 mm	I	31410	10 mm	IV
31204	4 mm	II	31412	12 mm	IV
31205	5 mm	II	31414	14 mm	IV
31305	5 mm	III	31516	16 mm	V
31306	6 mm	III	31518	18 mm	V
31307	7 mm	III	31620	20 mm	VI
31308	8 mm	III	31622	22 mm	VI
			31624	24 mm	VI
			31625	25 mm	VI
			31728	28 mm	VII
			31830	30 mm	VIII
			31832	32 mm	VIII
			31936	36 mm	IX



**EXTRA VULPLAATJES VOOR INCH SPIEBAANDRUKFREZEN
 SPARE SHIMS FOR KEYWAY INCH BROACHES.**

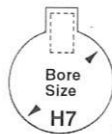
Code	Broach/ Drukrees	Type	Code	Broach/ Drukrees	Type
-30108	1/8	I	-30420	5/16	IV
-30208	1/8	II	-30424	3/8	IV
-30210	5/32	II	-30428	7/16	IV
-30212	3/16	II	-30432	1/2	IV
-30312	3/16	III	-30540	5/8	V
-30316	1/4	III	-30548	3/4	V
-30320	5/16	III	-30656	7/8	VI
-30324	3/8	III	-30664	1"	VI
			-30740	1.1/8	VI
			-30750	1.1/4	VIII
			-30760	1.3/8	IX
			-30770	1.1/2	IX



METRISCHE GELEIDEBUSSEN TYPE I
met kraag voor type I-drukfrezen

TYPE I COLLARED BUSHINGS
for type I metric broaches.

Code	Diam.	Length.
22106	6 mm	32 mm
22107	7 mm	32 mm
22108	8 mm	32 mm
22109	9 mm	32 mm
22110	10 mm	32 mm



METRISCHE GELEIDEBUSSEN TYPE II
met kraag voor type II-drukfrezen

TYPE II COLLARED BUSHINGS
for type II metric broaches.

Code	Diam.	Length.
22211	11 mm	46 mm
22212	12 mm	46 mm
22213	13 mm	46 mm
22214	14 mm	46 mm
22215	15 mm	46 mm
22216	16 mm	46 mm
22217	17 mm	46 mm
22218	18 mm	46 mm
22219	19 mm	46 mm

METRISCHE GELEIDEBUSSEN TYPE III
met kraag voor type III-drukfrezen

TYPE III COLLARED BUSHINGS
for type III metric broaches.

Code	Diam.	Length.
22317	17 mm	46 mm
22318	18 mm	46 mm
22319	19 mm	46 mm
22320	20 mm	46 mm
22322	22 mm	46 mm
22324	24 mm	46 mm
22325	25 mm	46 mm
22326	26 mm	46 mm
22327	27 mm	46 mm
22328	28 mm	46 mm
22330	30 mm	46 mm
22332	32 mm	46 mm
22334	34 mm	46 mm
22335	35 mm	46 mm
22336	36 mm	46 mm

METRISCHE GELEIDEBUSSEN TYPE IV
zonder kraag voor type IV-drukfrezen

TYPE IV PLAIN BUSHINGS
for type IV metric broaches.

Code	Diam.	Length.
22432	32 mm	100 mm
22434	34 mm	100 mm
22435	35 mm	100 mm
22436	36 mm	100 mm
22438	38 mm	100 mm
22440	40 mm	100 mm
22442	42 mm	100 mm
22444	44 mm	100 mm
22445	45 mm	125 mm
22446	46 mm	125 mm
22448	48 mm	125 mm
22450	50 mm	125 mm
22452	52 mm	125 mm
22454	54 mm	125 mm
22455	55 mm	125 mm
22456	56 mm	125 mm

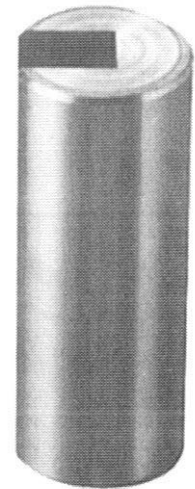
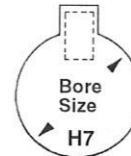
METRISCHE GELEIDEBUSSEN TYPE V
zonder kraag voor type V-drukfrezen

TYPE V PLAIN BUSHINGS
for type V metric broaches.

Code	Diam.	Length.
22552	52 mm	125 mm
22554	54 mm	125 mm
22555	55 mm	125 mm
22556	56 mm	125 mm
22558	58 mm	125 mm
22560	60 mm	150 mm
22562	62 mm	150 mm
22564	64 mm	150 mm
22565	65 mm	150 mm
22566	66 mm	150 mm
22568	68 mm	150 mm
22570	70 mm	150 mm
22572	72 mm	150 mm

* TYPE VI BUSHINGS
Ø70 t/m 115 op aanvraag

* TYPE VI BUSHINGS
75 till 115 mm on request



HSS PRECISIE SPIEBAANDRUKFREZEN
INCH MATEN INCLUSIEF VULPLAATJES.
Met toleranties volgens ISO J9.

HSS PRECISION KEYWAY BROACHES
INCH SIZES INCLUDING SHIMS.

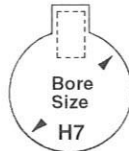
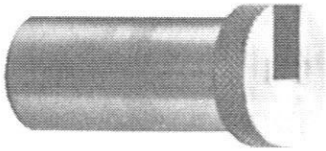
With tolerances according to ISO J9.

- A: Spiebreedte x inches + type frees.
B: Spiebaanbreedte toleranties inch
C: Drukrees afmetingen inch
D: Aantal vulplaatjes.
E: Min. snij lengte inch
F: Max. snij lengte inch
G: Aanbevolen persdruk Kgf

- A: Cutting width key inches+type broach.
B: Keyway tolerances inches.
C: Dimensions of broach inches.
D: No. of shims.
E: Min. cutting length inches.
F: Max. cutting length inches.
G: Pressure required Kgf



Code	A	B	C	D	E	F	G
10104	1/16-I	0,0625-0,0635	1/8-5.1/4	0	13/64	1.1/8	122
10106	3/32-I	0,0937-0,0947	1/8-5.1/4	0	13/64	1.1/8	365
10108	1/8-I	0,1252-0,1262	1/8-5.1/4	1	13/64	1.1/8	324
10206	3/32-II	0,0937-0,0947	3/16-7"	0	19/64	1.11/16	446
10208	1/8-II	0,1252-0,1262	3/16-7"	1	19/64	1.11/16	351
10210	5/32-II	0,1564-0,1574	3/16-7"	1	19/64	1.11/16	702
10212	3/16-II	0,1877-0,1887	3/16-7"	1	19/64	1.11/16	945
10312	3/16-III	0,1877-0,1887	3/8-11.7/8	1	13/32	2.1/2	648
10316	1/4-III	0,2502-0,2512	3/8-11.7/8	1	13/32	2.1/2	1161
10320	5/16-III	0,3127-0,3137	3/8-11.7/8	1	13/32	2.1/2	1890
10324	3/8-III	0,3755-0,3765	3/8-11.7/8	2	13/32	2.1/2	1620
10420	5/16-IV	0,3127-0,3137	9/16-13.7/8	1	3/4	6"	4162
10424	3/8-IV	0,3755-0,3765	9/16-13.7/8	2	3/4	6"	3600
10428	7/16-IV	0,4380-0,4390	9/16-13.7/8	2	3/4	6"	5288
10432	1/2-IV	0,5006-0,5016	9/16-13.7/8	3	3/4	6"	4950
10436	9/16-IV	0,5630-0,5640	9/16-13.7/8	3	3/4	6"	4955
10540	5/8-V	0,6260-0,6270	3/4-15.1/4	4	3/4	6"	5175
10548	3/4-V	0,7515-0,7525	3/4-15.1/4	5	3/4	6"	6075
10656	7/8-VI	0,8765-0,8775	1"-19.1/4	6	3/4	6"	4950
10664	1"-VI	1,0015-1,0025	1"-19.1/4	7	3/4	6"	6300
10666	1.1/8	1,1260-1,1270	1.1/8-23"	8	3/4	6"	7090
10668	1.1/4	1,2510-1,2520	1.1/4-23"	9	3/4	6"	7875
10670	1.3/8	1,3760-1,3770	1.3/8-23"	10	3/4	6"	8660
10672	1.1/2	1,5020-1,5030	1.1/2-23"	11	3/4	6"	9450



INCH GELEIDEBUSSEN TYPE I met kraag voor type I-drukfrezen

TYPE I COLLARED BUSHINGS For type I inch broaches.

Code	Diam.	Length.
20116	1/4	1.1/8
20118	5/16	1.1/8
20124	3/8	1.1/8
20128	7/16	1.1/8
20132	1/2	1.1/8

INCH GELEIDEBUSSEN TYPE II met kraag voor type II-drukfrezen

TYPE II COLLARED BUSHINGS For type II inch broaches.

Code	Diam.	Length.
20232	1/2	1.11/16
20236	9/16	1.11/16
20240	5/8	1.11/16
20244	11/16	1.11/16
20248	3/4	1.11/16
20252	13/16	1.11/16
20256	7/8	1.11/16

INCH GELEIDEBUSSEN TYPE III met kraag voor type II-drukfrezen

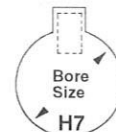
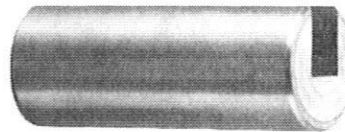
TYPE III COLLARED BUSHINGS For type III inch broaches.

Code	Diam.	Length.
20348	3/4	2.1/2
20352	13/16	2.1/2
20356	7/8	2.1/2
20360	15/16	2.1/2
20364	1"	2.1/2
20368	1.1/16	2.1/2
20372	1.1/8	2.1/2
20376	1.3/16	2.1/2
20380	1.1/4	2.1/2
20384	1.5/16	2.1/2
20388	1.3/8	2.1/2
20392	1.7/16	2.1/2
20396	1.1/2	2.1/2
20400	1.9/16	2.1/2

INCH GELEIDEBUSSEN TYPE IV zonder kraag voor type IV-drukfrezen

TYPE IV PLAIN BUSHINGS For type IV inch broaches.

Code	Diam.	Length.	Code	Diam.	Length.
21492	1.7/16	4"	21552	2.3/8	6"
21496	1.1/2	4"	21556	2.7/16	6"
21500	1.9/16	4"	21560	2.1/2	6"
21504	1.5/8	4"	21564	2.9/16	6"
21508	1.11/16	4"	21568	2.5/8	6"
21512	1.3/4	4"	21572	2.11/16	6"
21516	1.13/16	5"	21576	2.3/4	6"
21520	1.7/8	5"	21580	2.13/16	6"
21524	1.15/16	5"	21584	2.7/8	6"
21528	2"	5"	21588	2.15/16	6"
21532	2.1/16	5"	21592	3"	6"
21536	2.1/8	5"			
21540	2.3/16	5"			
21544	2.1/4	5"			
21548	2.5/16	5"			



INCH GELEIDEBUSSEN TYPE V zonder kraag voor type IV-drukfrezen

TYPE V PLAIN BUSHINGS For type V inch broaches.

Code	Diam.	Length.	Code	Diam.	Length.
21688	2.5/16	6"	21712	2.11/16	6"
21692	2.3/8	6"	21716	2.3/4	6"
21696	2.7/16	6"	21720	2.13/16	6"
21700	2.1/2	6"	21724	2.7/8	6"
21704	2.9/16	6"	21728	2.15/16	6"
21708	2.5/8	6"	21732	3"	6"

* TYPE VI BUSSEN 3/4" till 4 1/2" op aanvraag / on request

HSS PRECISIE VIERKANT DRUKFREZEN METRISCHE MATEN

HSS PRECISION STANDARD METRIC SQUARE BROACHES.



Code	A	B	C	D	E	F	G	H	K
17001	4	4,01-4,03	5,28-5,31	4,2	4,2	141,29	7,94	15,88	360
17002	5	5,01-5,04	6,72-6,74	5,2	5,2	174,63	9,53	19,05	550
17003	6	6,01-6,04	8,37-8,38	6,35	6,35	177,8	9,53	19,05	700
17004	8	8,01-8,04	11,19-11,20	8,3	8,3	205,72	11,11	22,23	1200
17005	10	10,01-10,04	13,8-13,83	10,3	10,3	276,23	12,7	25,4	1700
17006	12	12,01-12,04	16,61-16,64	12,5	12,5	317,5	15,88	31,75	2600
17007	14	14,01-14,04	19,56-19,58	15	15	377,83	19,05	38,10	3000
17008	16	16,03-16,04	22,30-22,33	17	17	427,04	22,23	44,05	3200
17009	18	18,01-18,04	25,10-25,12	20	20	469,90	22,23	44,05	3600
17010	20	20,01-20,04	27,91-27,94	22	22	479,43	22,23	44,05	4000
17011	22	22,01-22,04	30,76-30,78	24	24	590,55	22,23	44,05	4800
17012	24	24,01-24,04	33,45-33,48	26	26	623,89	22,23	44,05	5200
17013	25	25,01-25,04	34,87-34,90	27	27	623,89	22,23	44,05	5600

A: Vierkant mm
B: Toleranties mm
C: Frees afm. overhoeks mm
D: Geleide diameter mm
E: Boormaat mm
F: Drukrees lengte mm
G: Min. snijlengte mm
H: Max. snijlengte mm
K: Benodigde persdruk Kg

A: Cutting size square mm
B: Tolerances mm.
C: Dim. across corners mm.
D: Pilot diam. mm.
E: Drill size mm.
F: Overall length mm.
G: Min. cutting length mm.
H: Max. cutting length mm.
K: Pressure required Kg

HSS PRECISIE VOLVIERKANT DRUKFREZEN INCH MATEN

HSS PRECISION STANDARD FULL SQUARE BROACHES INCH SIZES.



Code	A	B	C	D	E	F	G	H	K
14012	3/16	0,1880-0,1890	0,2628-0,2632	0,1870	3/16	6.1/4	3/16	1/2	540
14016	1/4	0,2505-0,2515	0,3513-0,3517	0,2495	1/4	8.5/8	1/4	5/8	720
14020	5/16	0,3120-0,3130	0,4375-0,4380	0,3120	5/16	10.1/4	1/4	3/4	1035
14024	3/8	0,3755-0,3765	0,5243-0,5247	0,3745	3/8	12.1/4	3/8	1"	1688
14032	1/2	0,5005-0,5015	0,6980-0,6990	0,4995	1/2	14.7/16	3/8	1"	2250

A: Vierkant inches
B: Toleranties inch
C: Frees afm. overhoeks inch
D: Geleide diameter inch
E: Boormaat inch
F: Drukrees lengte inch
G: Min. snijlengte inch
H: Max. snijlengte inch
K: Benodigde persdruk Kg

A: Cuttingsize square inches
B: Tolerances inches.
C: Dim. across corners inches.
D: Pilot diam. inches.
E: Drill size inches.
F: Overall length inches.
G: Min. cutting length inches.
H: Max. cutting length inches.
K: Pressure required Kg

HSS PRECISIE VIERKANT DRUKFREZEN INCH MATEN**HSS PRECISION STANDARD SQUARE BROACHES INCH SIZES.**

Code	A	B	C	D	E	F	G	H	K
13008	1/8	0,1250-0,1260	0,1750-0,1770	0,1280	#30	4.5/8	3/16	1/2	315
13010	5/32	0,1565-0,1575	0,2180-0,2200	0,1585	#21	5.5/8	1/4	1/2	360
13012	3/16	0,1880-0,1890	0,2620-0,2640	0,1930	#10	5.11/16	1/4	5/8	504
13014	7/32	0,2190-0,2200	0,3050-0,3070	0,2275	#1	6.7/8	1/4	3/4	711
13016	1/4	0,2505-0,2515	0,3500-0,3520	0,2651	17/64	7	1/4	3/4	783
13018	9/32	0,2815-0,2825	0,3930-0,3950	0,2964	19/64	7.1/4	3/8	1	1035
13020	5/16	0,3130-0,3140	0,4370-0,4390	0,3267	21/64	8.1/8	3/8	1	1184
13022	11/32	0,3440-0,3450	0,4810-0,4830	0,3589	23/64	9.5/8	3/8	1.1/4	1373
13024	3/8	0,3755-0,3765	0,5230-0,5250	0,3901	25/64	9.7/8	3/8	1.1/4	1632
13026	13/32	0,4065-0,4075	0,5680-0,5700	0,4214	27/64	10.7/8	1/2	1.3/8	2340
13028	7/16	0,4385-0,4395	0,6110-0,6130	0,4526	29/64	11.3/8	1/2	1.3/8	2565
13030	15/32	0,4690-0,4700	0,6560-0,6580	0,4995	1/2	12.1/2	1/2	1.3/8	2655
13032	1/2	0,5005-0,5015	0,6970-0,6990	0,5307	17/32	12.5/8	1/2	1.3/8	2700
13036	9/16	0,5630-0,5640	0,7860-0,7880	0,5932	19/32	14.7/8	1/2	1.1/2	2790
13040	5/8	0,6260-0,6270	0,8710-0,8730	0,6557	21/32	16.13/16	5/8	1.5/8	3195
13044	11/16	0,6885-0,6895	0,9610-0,9630	0,7495	3/4	18.1/2	5/8	1.5/8	3285
13048	3/4	0,7510-0,7520	1,0450-1,0470	0,8120	13/16	18.7/8	5/8	1.5/8	3870
13056	7/8	0,8765-0,8775	1,2280-1,2300	0,9370	15/16	22.3/4	1/2	2	5400
13064	1	1,0020-1,0030	1,4030-1,4050	1,0932	1.3/32	24.1/2	1/2	2	5625

A: Vierkant inches
 B: Toleranties inch
 C: Frees afm. overhoeks inch
 D: Geleide diameter inch
 E: Boormaat inch
 F: Drukfrees lengte inch
 G: Min.snijlengte inch
 H: Max.snijlengte inch
 K: Benodigde persdruk Kgf

A: Cutting size square inches.
 B: Tolerances inches.
 C: Dim. across corners inches.
 D: Pilot diam. inches.
 E: Drill size inches.
 F: Overall length inches.
 G: Min. cutting length inches.
 H: Max. cutting length inches.
 K: Pressure required Kgf

**HSS PRECISIE ZESKANT DRUKFREZEN METRISCHE MATEN****HSS PRECISION STANDARD METRIC HEXAGON BROACHES.**

A: Zeskant mm
 B: Toleranties mm
 C: Frees afm. overhoeks mm
 D: Geleide diameter mm
 E: Boormaat mm
 F: Drukfrees lengte mm
 G: Min.snijlengte mm
 H: Max.snijlengte mm
 K: Benodigde persdruk Kgf

A: Cutting hexagon mm
 B: Tolerances mm.
 C: Dim. across corners mm.
 D: Pilot diam. mm.
 E: Drill size mm.
 F: Overall length mm.
 G: Min. cutting length mm.
 H: Max. cutting length mm.
 K: Pressure required Kgf

Code	A	B	C	D	E	F	G	H	K
12104	4	4,01-4,03	4,62-4,65	4,0	4,0	139,7	6,35	12,7	153
12105	5	5,01-5,04	5,77-5,79	5,0	5,0	152,4	6,35	19,05	401
12106	6	6,01-6,04	6,93-6,96	6,0	6,0	165,11	6,35	19,05	563
12107	7	7,01-7,04	8,08-8,1	7,0	7,0	198,95	9,53	25,4	743
12108	8	8,01-8,04	9,23-9,26	8,0	8,0	209,55	9,53	25,4	979
12110	10	10,01-10,04	11,49-11,56	10	10	254	12,7	34,93	1845
12112	12	12,01-12,04	13,85-13,87	12	12	314,33	12,7	34,93	2115
12114	14	14,03-14,04	16,08-16,11	14	14	361,95	12,7	38,1	3015
12116	16	16,01-16,04	18,41-18,44	16	16	428,63	15,88	41,28	3263
12118	18	18,01-18,04	20,70-20,73	18	18	431,8	15,88	41,28	4230
12120	20	20,01-20,04	22,98-23,01	20	20	454,03	15,88	41,28	6368
12122	22	22,01-22,04	25,29-25,32	22	22	479,03	15,88	41,28	8325
12124	24	24,01-24,04	27,60-27,63	24	24	504,83	15,88	41,28	9225
12125	25	25,01-25,04	28,76-28,79	25	25	504,83	15,88	41,28	9900

HSS PRECISIE ZESKANT DRUKFREZEN INCH MATEN**HSS PRECISION STANDARD HEXAGON BROACHES INCH SIZES.**

Code	A	B	C	D	E	F	G	H	K
12008	1/8	0,1255-0,1260	0,1450-0,1470	0,1245	1/8	4.5/8	3/16	3/8	54
12010	5/32	0,1565-0,1570	0,1800-0,1820	0,1557	5/32	5.1/2	1/4	1/2	153
12012	3/16	0,1880-0,1890	0,2145-0,2155	0,1870	3/16	5.9/16	1/4	5/8	234
12014	7/32	0,2190-0,2200	0,2500-0,2520	0,2182	7/32	6"	1/4	3/4	401
12016	1/4	0,2505-0,2515	0,2865-0,2875	0,2495	1/4	6.1/2	1/4	3/4	563
12018	9/32	0,2815-0,2825	0,3220-0,3240	0,2807	9/32	7.3/4	3/8	1"	743
12020	5/16	0,3130-0,3140	0,3580-0,3590	0,3120	5/16	8.1/4	3/8	1"	980
12022	11/32	0,3440-0,3450	0,3590-0,3970	0,3432	11/32	8.1/4	3/8	1.1/4	1575
12024	3/8	0,3755-0,3765	0,4300-0,4310	0,3745	3/8	9"	3/8	1.1/4	1665
12026	13/32	0,4065-0,4075	0,4670-0,4690	0,4057	13/32	10"	1/2	1.3/8	1845
12028	7/16	0,4385-0,4395	0,5020-0,5030	0,4370	7/16	10.3/4	1/2	1.3/8	2059
12030	15/32	0,4690-0,4700	0,5390-0,5410	0,4682	15/32	12.3/8	1/2	1.3/8	2115
12032	1/2	0,5005-0,5015	0,5740-0,5750	0,4995	1/2	12.1/2	1/2	1.3/8	2385
12036	9/16	0,5630-0,5640	0,6480-0,6500	0,5620	9/16	14.1/4	1/2	1.5/8	3015
12040	5/8	0,6260-0,6270	0,7170-0,7185	0,6245	5/8	16.7/8	5/8	1.5/8	3263
12044	11/16	0,6885-0,6895	0,7930-0,7950	0,6870	11/16	17"	5/8	1.5/8	4185
12048	3/4	0,7510-0,7520	0,8610-0,8625	0,7495	3/4	17.7/8	5/8	1.5/8	6075
12056	7/8	0,8765-0,8775	1,0060-1,0075	0,8745	7/8	18.7/8	5/8	1.5/8	8325
12064	1"	1,0020-1,0030	1,1520-1,1530	0,9995	1"	19.7/8	5/8	1.5/8	9923

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A: Cutting hexagon inches
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 E: Drill size inches.
 F: Overall length inches.
 G: Min. cutting length inches.
 H: Max. cutting length inches.
 K: Pressure required Kgf





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