

World class range
of mould solutions for
plastic industry.



Sophisticated
Machine Tools used for
Precision Machining



Advanced manufacturing facility.
Housed in the lap of clean, green nature.

Normalien Brief History

After varied experience of more than 40 years in Industrial Engineering Production, Mr. Narendra Shah, ventured to diversify the group in the millennium year 2000, into production of precision tooling products under the brand name and style 'Normalien Tooling Systems Private Ltd', with its head office at Mumbai (India), and production facilities located at Surendranagar (Gujarat).

Normalien is established with the aim of supplying Precision Mould Bases and Mould Base Components to mould makers and to impart knowledge on use of precision manufactured mould bases and components in plastic mould and die-casting die making industry.

Normalien initially commenced supply of Locating Pins and Guide Bushes, but with customer contact led to the development of Precision Mould Bases. Normalien has since been catering to the requirement of High Quality Precision Mould Bases and components to mould makers. The inflow of repeat orders from our valued customers vouch for their immense faith and confidence in Normalien products.

Normalien is equipped with precision modern manufacturing equipments, excellent manufacturing techniques, well qualified personnel's and highly skilled workforce. All these factors contribute in making Normalien to manufacture and supply mould bases to customers as per their requirement, as also capable of manufacturing custom built mould bases to their individual drawings.

Normalien has implemented expansion project and with this programme our production capacity has increased to be able to process even large size mold bases in size 700 mm x 1000 mm. The increase in production capacity will also enable us to serve the customers with short lead time.

Normalien is constantly in touch with national and international development and adopt such improvements so that our customers are well served with technologically superior products.

Mould makers in developed countries have realized long ago that to make good moulds, you also need a very good mould base. This is how the mould base industry was established and with increase in use of plastics in domestic and industrial sectors, the mould base industry has achieved improved quality and it has helped the mould making industry to be able to deliver the moulds much quickly. For growth of your business, we recommend to adopt 'Normalien' Mould Bases and components.

Why Adopt “Normalien” ?

Why are ‘Normalien’ high quality plastic injection moulds bases and mould base components important ?

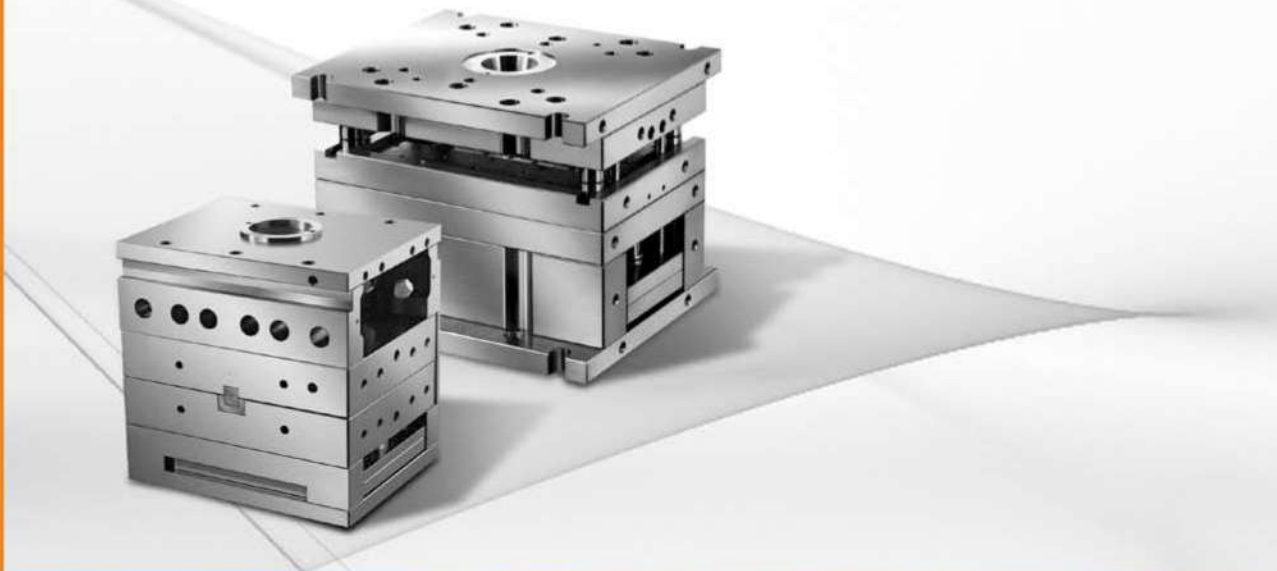
Cost : Normalien custom made mould base and the mould base components are nearly always cheaper to purchase. The profits are in the mould making. It is more profitable to purchase a standard mould base and the related components and complete the mould quickly to realize the sales.

Consistency : Normalien supplies guarantees close tolerances, while you can focus your attention on the cores and cavities. The profit is in the cores and cavities, so why spend time making something that can be purchased cheaper. Even if it costs a bit more, it still make good business sense most of the time.

Delivery : Normalien will supply just what you want, on time. You can also buy in small quantities as per your requirement, when you need it so that you do not have to carry unnecessary inventory.

Flexibility and innovation : Normalien is constantly searching for new and better ways to make components and improve their application. Normalien applies engineering expertise on each item and for such attention to individual parts mould makers have no time to spare. Let the plates, parts be made by specialist geared for precision production on modern equipments.

Good communication : Normalien can be reached via telephone, e-mail, fax, mobile and are always available to meet your requirement.



Understanding Product Group

System Normalien is developed with individual product group approach and has presently three product groups, namely :

1. KH PRODUCT GROUP : Machined, Ground, Bored Plates covering plates of mould bases from 095 x 095 to 796 x 996 m.m. All surfaces are fully machined and ground which can be used as datum points.

2. PP PRODUCT GROUP : PP Plain Machined and ground Plates for use in construction of Mould Base, Die Casting dies, Jig Fixtures and other engineering applications. One can obtain only machined plates by ordering with the symbol M.

3. SN PRODUCT GROUP : Parts and accessories for use in connection with construction of mould base and injection mouldings. In each part large variety of sizes are available and can be viewed individually. The modular arrangements of parts allow one to choose the entry level into our system depending on one's own requirement. For making your mould base, one can select KH Plates and together with required accessories from SN group, assemble the mould base quickly.

Detailed information about each product group follows in subsequent pages.



KH-Normalien

This product group covers plates ready for assembly into mould base. All these plates are normally made from prime steel C 45 and P 20 grade or even higher grade of steel as per customer specifications. Steel plates, undergo structure examination for cracks or other defects after which they are fully machined on high speed modern machines, surface ground with rough and fine grinding. All edges are also machined and surface ground. All plates are then finished with operation on precision CNC machine –‘Deckel-Maho’ imported from Germany or similar. The plates are fully inspected before dispatch.

KH Plate programme covers square, rectangle, flat, round and ring size plates for mould base. To complete the mould base with KH Plate a wide choice of parts, components and accessories is available under product group SN. Under KH programme, plates suitable for mould bases from 095 x 095 to 796 x 996 are available.

We use for plates prime quality tested C 45 , which meets the normal requirements of a mould base. For special requirements, we can supply complete mould base or some selected plate from higher grades of steel. Full details and information is available under the table on page 9 showing quality of steel mainly used for mould base and parts under details separately provided.

KH plates are available for sizes of standard mould bases and for detail, please see the table given on page 11. This table indicates the minimum thickness of plates for particular size of mould base, bores, tapping so that even if you want to design mould base as per your drawings these data may be found useful.

With the indications of thickness, bores and tapping it will be possible to use standardize locating guide pillars, bushes and other components which falls under SN group and details are available on respective pages.

We have prepared such a table indicating plates thickness of different plate as option and if your design department will adopt sizes of mould bases and thickness of plate from within the table it will slowly facilitate availability of standard mould base, which will be available readily thereby further shortening the mould making time.

PP Normalien

This product group covers machined and ground plates without holes. These are also high quality plates with indicated tolerance.

Under this programme, plates of various sizes and thickness are covered and maximum size of plate we can supply is 796 x 996 m.m.

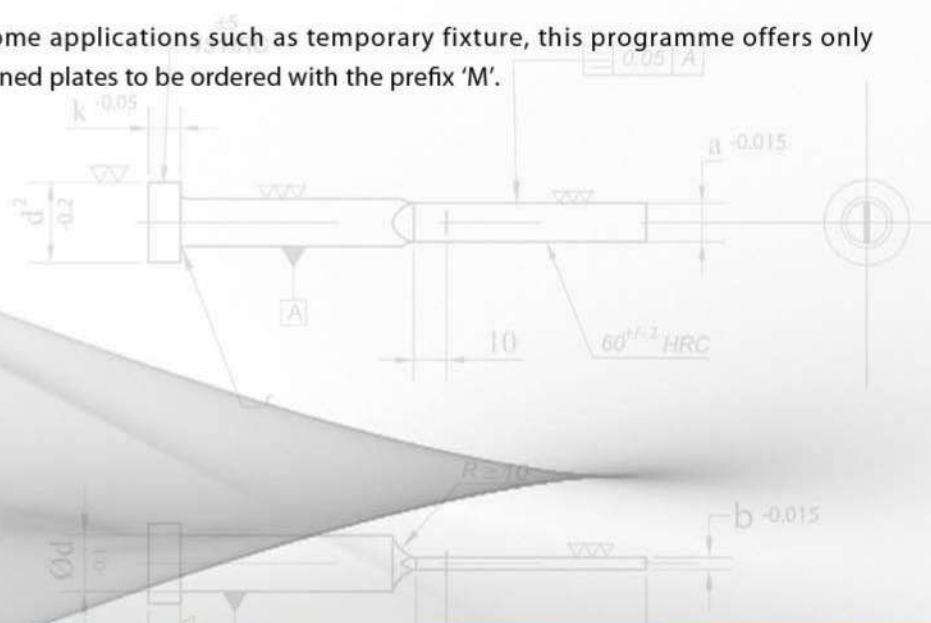
If one wants to bore these plates only as per your individual drawings, then you can take PP Plate, bore and tap as required and again together with required accessories from SN group you can complete the mould base. The system is flexible and gives the designer freedom to move as per his individual requirement while as part belongs to standardized production, one can still have the benefit of high quality and quick availability of components

This programme helps mould makers to make their own hole distance, tappings to meet individual design requirements. This PP programme in conjunction with our SN programme again helps one to build up a mould base and thereby complete the mould quickly.

PP Plates are available in square, rectangle, flat, round, ring shapes and almost every requirement of the mould industry can be fulfilled with this programme.

PP Plates are also useful in other engineering applications such as jigs & fixtures and construction of special purpose machines. All around this useful programme helps to save considerable time and labour.

For some applications such as temporary fixture, this programme offers only machined plates to be ordered with the prefix 'M'.



SN Product Group

SN Group under system Normalien are containing component parts and various accessories which are also standardized and you can view all these items under the individual pages. This programme covers large range of regularly used parts by mould making industry such as Locating Guide Pillars, Locating Guide Bush, Locating Units flat and round, Ejector Pins, Locating Ring , Lifting Device etc. Each part is available in many sizes and dimension and technical details are available on respective pages. Dimension catalogue and a personal reference copy of the same can be requested on our website. Please use the details and adopt standardized Normalien parts to avoid expensive designing time which can be employed in other beneficial ways.

All SN Group Parts are made of high grade appropriate steel as per international practice. These grades are different for different parts and for each part and depending on service and application, the steel quality is decided. For all these purposes, high grade case hardening steel, ball bearing steel, Hot die Steel, HCHC grade steel, Cold Working steel are used on the basis of service performance required. Most of the parts indicate steel quality and tensile strength resp. hardness. You can see the wide variety of components on respective pages.

Detailed dimension sheet of each SN product can be obtained from Normalien for your files, so that easy reference is available of the sizes which are available as standards from stock which makes it easy to procure the same. You can ask for this dimension sheet of SN parts from Normalien by filling in the request form, by visiting our website www.normalientooling.com or www.normalientooling.org



Steel Qualities

Normalien uses selected steel in their production of Mould Base and Parts. Standard steel used for plate is C45. However higher grade steel such as P20 or EN series steel plates are used. Many parts are made of case hardening steel mainly SAE8620 equivalent to 16mn Cr5 German grade. Main steel grade analysis are given hereunder:

Chemical Composition

Sr. No.	Material	C/	Cr	Ni	Mn	S
1	C45	0.45 / 0.50	--	--	0.6 / 0.9	0.024
2	EN36	0.12 / 0.18	0.60 / 1.1	3.0 / 3.75	0.30 / 0.60	--
3	EN31	0.90 / 1.10	1.0 / 1.6	--	0.15 / 0.40	--
4	P20 (1.2311)	0.40	1.90	--	--	--
5	SAE8620	0.18 / 0.23	0.35 / 0.65	0.40 / 0.70	0.60 / 1.10	--

Physical Properties

Sr. No.	Material	Kg. / mm2	Elongation %	Raw Hardnen BHN	Additional
1	C45	60	11	210max	Additional Steel Grades used in mould base industry as per German material Nos. 1.2162 1.2764 1.2767 1.2083 1.2343 Can be used against specific orders if imported steel is available
2	EN36	102	7	--	
3	EN31	880-1080 N/mm2	--	225max	
4	P20 (1.2311)	60/80	24/23	--	
5	SAE8620	---	---	---	

Identification of parts & Normalien Code Numbers

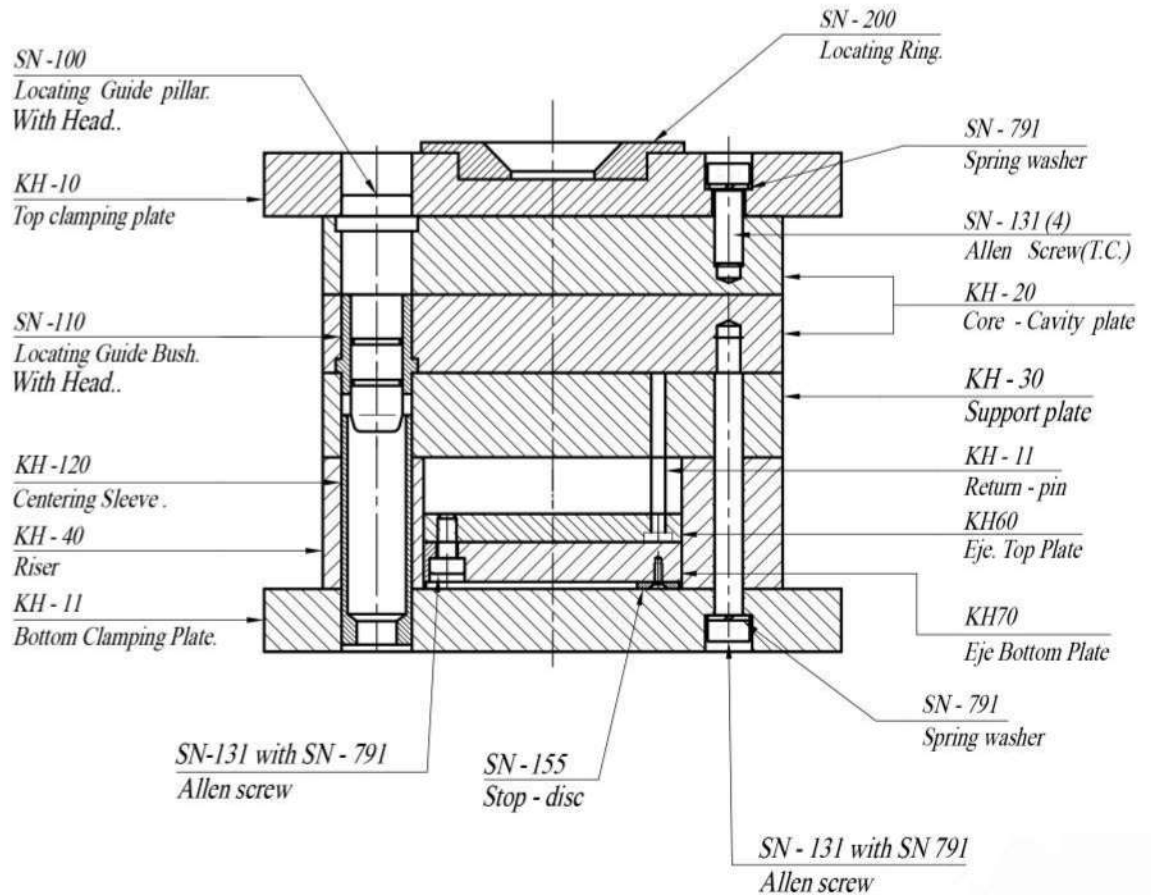
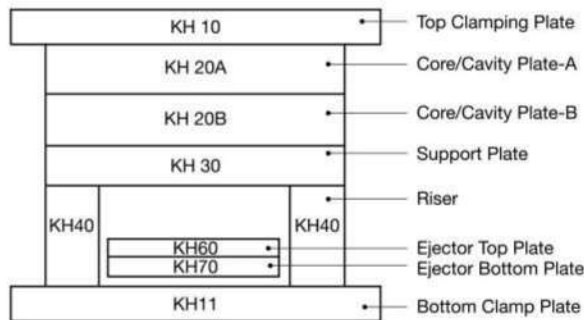
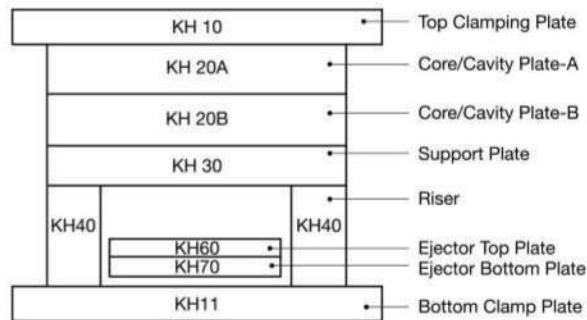


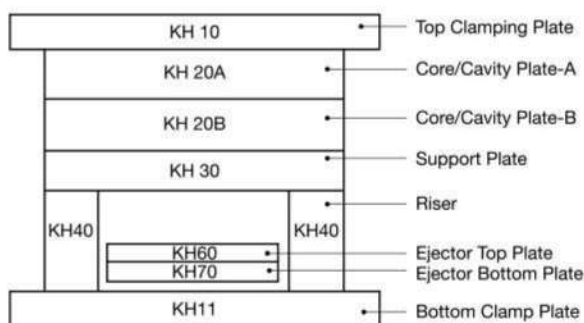
Table showing Normalien standard Mould base Sizes with indication of different Plate thickness for each plate as is recommended for use under the system Normalien



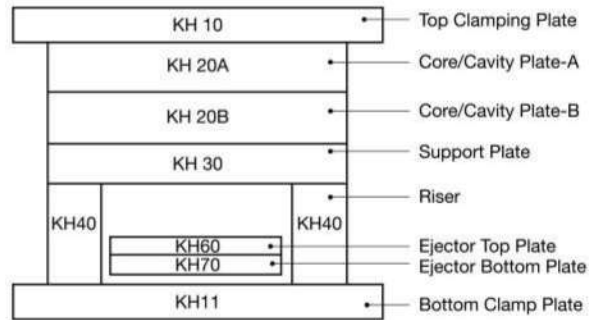
Sr. No.	Normalien Mould Base	Clamping Plate Top / Bottom	Cavity Plate	Support Plate	Risers	Ejector Top Plate	Ejector Bottom Plate	Recommended pin size	Recommended Bore Size	Recommended Tapping m.m. or Allen Bolt M
	Code Number	KH 10 KH 11	KH 20 A & B	KH 30	KH 40	KH 60	KH 70	Dia d1	Dia d3	
1	095 X 095 (3.3/4" X 3.3/4")	22	9,12,17,22,27,36,46,56	6,12,17	22,27,36,46	6	9	9 or 10	14	6
2	100 X 130 (4" X 5.1/8")	22	9,12,17,22,27,36,46,56	6,12,17	27,36,46	6	9	9 or 10	14	6
3	156 X 156 (6.1/8" X 6.1/8")	22,27	17,22,27,36,46,56,66,76	27,36	46,56,76	9	17	14 or 15	20	10
4	156 X 196 (6.1/8" X 7.3/4")	22,27	17,22,27,36,46,56,66,76	27,36	46,56,76	9	17	14 or 15	20	10
5	156 x 246 (6.1/8" x 9.11/16")	22,27	17,22,27,36,46,56,66,76	27,36	46,56,76	9	17	14 or 15	20	10
6	156 x 296 (6.1/8" x 11.5/8")	27	22,27,36,46,56,66,76	27,36	46,56,76	12	17	14 or 15	20	10
7	196 x 196 (7.3/4" x 7.3/4")	22,27	17,22,27,36,46,56,66,76,86,96	27,36	46,56,76	12	17	18 or 20	26	10
8	190 x 246 (7.1/2" x 9.11/16")	22,27	17,22,27,36,46,56,66,76,86,96	27,36	46,56,76	12	17	18 or 20	26	10
9	196 x 296 (7.3/4" x 11.5/8")	27,36	17,22,27,36,46,56,66,76,86,96	36	56,76,96	12	17	22 or 24	30	12
10	196 x 346 (7.3/4" x 13.5/8")	27,36	17,22,27,36,46,56,66,76,86,96	36	56,76,96	12	17	22 or 24	30	12
11	196 x 396 (7.3/4" x 15.5/8")	36	27,36,46,56,66,76,86,96	36	56,76,96	17	22	22 or 24	30	12
12	218 x 246 (8.5/8" x 9.11/16")	22,27	17,22,27,36,46,56,66,76,86,96	27,36	46,56,76	12	17	18 or 20	26	12
13	218 x 296 (8.5/8" x 11.5/8")	27,36	17,22,27,36,46,56,66,76,86,96	27,36	56,76,96	12	17	22 or 24	30	12
14	246 x 246 (9.11/16" x 9.11/16")	27,36	17,22,27,36,46,56,66,76,86,96	36	56,76,96	12	17	22 or 24	30	12
15	246 x 296 (9.11/16" x 11.5/8")	27,36	17,22,27,36,46,56,66,76,86,96,116	36	56,76,96	12	17	22 or 24	30	12
16	246 x 346 (9.11/16" x 13.5/8")	27,36	22,27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
17	246 x 396 (9.11/16" x 15.5/8")	27,36	22,27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
18	246 x 446 (9.11/16" x 17.9/16")	36	27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
19	246 x 496 (9.11/16" x 19.1/2")	36	27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
20	296 x 296 (11.5/8" x 11.5/8")	27,36	22,27,36,46,56,66,76,86,96,116	36,46	56,76,96	12	17	22 or 24	30	12



Sr. No.	Normalien Mould Base	Clamping Plate Top / Bottom	Cavity Plate	Support Plate	Risers	Ejector Top Plate	Ejector Bottom Plate	Recommended pin size	Recommended Bore Size	Recommended Tapping m.m. or Allen Bolt M
	Code Number	KH 10 KH 11	KH 20 A & B	KH 30	KH 40	KH 60	KH 70	Dia d1	Dia d3	
21	296 X 346	27,36	22,27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
22	296 X 396	27,36	22,27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
23	296 X 446	36	27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
24	296 X 496	36	27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
25	296 X 546	36	27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
26	296 X 596	36	27,36,46,56,66,76,86,96,116	36,46	76,96,116	22	27	22 or 24	30	12
27	296 X 696	36,46	27,36,46,56,66,76,86,96,116	36,46	76,86,96,116,136	22	27	30 or 32	42	16
28	346 X 346	27,36	22,27,36,46,56,66,76,86,96,116	36,46	56,76,96	17	22	22 or 24	30	12
29	346 X 396	27,36,46	22,27,36,46,56,66,76,86,96,116	27,36,46	56,66,76,86,96,116	17	22	30 or 32	42	16
30	346 X 446	27,36,46	27,3,46,56,66,76,86,96,116	27,36,46	56,66,76,86,96,116,136	17	22	30 or 32	42	16
31	346 X 496	27,36,46	22,27,36,46,56,66,76,86,96,116	36,46	56,66,76,86,96,116,136	17	22	30 or 32	42	16
32	346 X 546	36,46	27,36,46,56,66,76,86,96,116,136	36,46	66,76,86,96,116,136	22	27	30 or 32	42	16
33	346 X 596	36,46	27,36,46,56,66,76,86,96,116,136	36,46	66,76,86,96,116,136	22	27	30 or 32	42	16
34	346 X 696	36,46	27,36,46,56,66,76,86,96,116,136	36,46	76,86,96,116,136	22	27	30 or 32	42	16
35	346 x 796	46,56	36,46,56,76,96,116,136,156,196	36,46,56	86,96,116,136,156	22	27	30 or 32	42	16
36	396 X 396	27,36,46	22,27,36,46,56,66,76,86,96,116	36,46	56,66,76,86,96,116	17	22	30 or 32	42	16
37	396 X 446	27,36,46	27,36,46,56,66,76,86,96,116	36,46	56,66,76,86,96,116	17	22	30 or 32	42	16
38	396 X 496	36,46	27,36,46,56,66,76,86,96,116,136	36,46	66,76,86,96,116,136	22	27	30 or 32	42	16
39	396 X 546	36,46	27,36,46,56,66,76,86,96,116,136	46,56	66,76,86,96,116,136	17	27	30 or 32	42	16
40	396 X 596	36,46	27,36,46,56,66,76,86,96,116,136	46,56	66,76,86,96,116,136	22	27	30 or 32	42	16

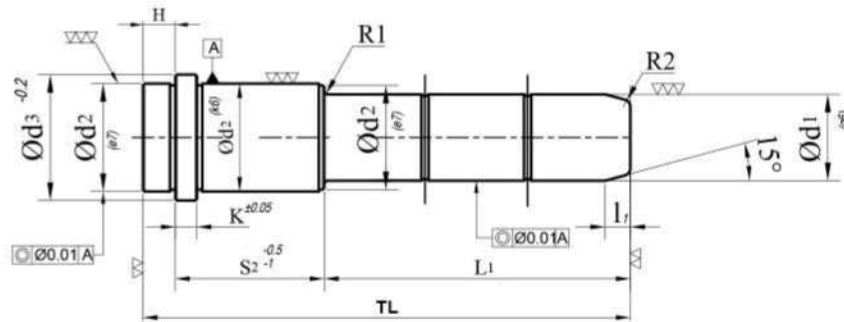


Sr. No.	Normalien Mould Base	Clamping Plate Top / Bottom	Cavity Plate	Support Plate	Risers	Ejector Top Plate	Ejector Bottom Plate	Recommended pin size	Recommended Bore Size	Recommended Tapping m.m. or Allen Bolt M
	Code Number	KH 10 KH 11	KH 20 A & B	KH 30	KH 40	KH 60	KH 70	Dia d1	Dia d3	
41	396 X 696	46, 56	36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	76, 86, 96, 116, 136	27	36	30 or 32	42	16
42	396 X 796	46, 56	36, 46, 56, 76, 96, 116, 136, 156	46, 56	86, 96, 116, 136, 156	27	36	30 or 32	42	16
43	396 X 896	46, 56	36, 46, 56, 76, 96, 116, 136, 156	46, 56	86, 96, 116, 136, 156	27	36	30 or 32	42	16
44	446 X 446	36, 46	27, 36, 46, 56, 66, 76, 86, 96, 116	36, 46	56, 66, 76, 86, 96, 116	17	27	30 or 32	42	16
45	446 X 496	36, 46	27, 36, 46, 56, 66, 76, 86, 96, 116, 136	46, 56	66, 76, 86, 96, 116, 136	22	27	30 or 32	42	16
46	446 X 546	36, 46	27, 36, 46, 56, 66, 76, 86, 96, 116, 136	46, 56	66, 76, 86, 96, 116, 136	22	27	30 or 32	42	16
47	446 X 596	36, 46	27, 36, 46, 56, 66, 76, 86, 96, 116, 136	46, 56	66, 76, 86, 96, 116, 136	22	27	30 or 32	42	16
48	446 X 696	46, 56	36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	76, 86, 96, 116, 136	27	36	30 or 32	42	16
49	446 X 796	46, 56	36, 46, 56, 76, 96, 116, 136, 156	46, 56	86, 96, 116, 136, 156	27	36	30 or 32	42	16
50	446 X 896	46, 56	36, 46, 56, 76, 96, 116, 136, 156	46, 56	86, 96, 116, 136, 156	27	36	30 or 32	42	16
51	496 X 496	36, 46, 56	27, 36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	66, 76, 86, 96, 116, 136	27	36	30 or 32	42	16
52	496 X 546	36, 46, 56	27, 36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	66, 76, 86, 96, 116, 136	27	36	30 or 32	42	16
53	496 X 596	46, 56	36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	76, 86, 96, 116, 136	27	36	30 or 32	42	16
54	496 X 696	46, 56	36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	76, 86, 96, 116, 136	27	36	30 or 32	42	16
55	496 X 796	56	56, 76, 96, 116, 136, 156, 196	56, 76	96, 116, 136, 156	27	36	40 or 42	54	20
56	496 X 896	56	56, 76, 96, 116, 136, 156, 196	56, 76	96, 116, 136, 156	27	36	40 or 42	54	20
57	496 X 996	56	56, 76, 96, 116, 136, 156, 196	56, 76	96, 116, 136, 156	27	36	40 or 42	54	20
58	546 X 546	46, 56	36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	76, 86, 96, 116, 136	27	36	30 or 32	42	16
59	546 X 596	46, 56	36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	76, 86, 96, 116, 136	27	36	30 or 32	42	16
60	546 X 696	46, 56	36, 46, 56, 66, 76, 86, 96, 116, 136, 156	46, 56	76, 86, 96, 116, 136	27	36	30 or 32	42	16

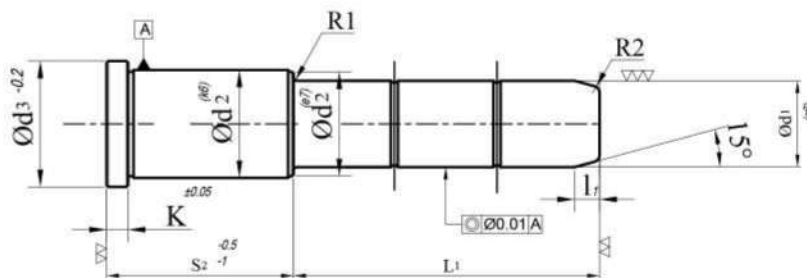


Sr. No.	Normalien Mould Base	Clamping Plate Top / Bottom	Cavity Plate	Support Plate	Risers	Ejector Top Plate	Ejector Bottom Plate	Recommended pin size	Recommended Bore Size	Recommended Tapping m.m. or Allen Bolt M
	Code Number	KH 10 KH 11	KH 20 A & B	KH 30	KH 40	KH 60	KH 70	Dia d1	Dia d3	
61	546 X 796	56	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
62	546 X 896	56	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
63	546 X 996	56	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
64	596 X 596	46,56	36,46,56,66,76,86,96,116,136,156	46,56	76,86,96,116,136	27	36	30 or 32	42	16
65	596 X 696	56	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
66	596 X 796	56	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
67	596 X 896	56	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
68	596 X 996	56	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
69	696 X 696	76	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
70	696 X 796	76	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
71	696 X 896	76	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
72	696 X 996	76	56,76,96,116,136,156,196	56,76	96,116,136,156	27	36	40 or 42	54	20
73	796 X 796	76	56,76,96,116,136,156,196	56,76	96,116,136,156	27	46	40 or 42	54	20
74	796 X 896	76	56,76,96,116,136,156,196	56,76	96,116,136,156	27	46	40 or 42	54	20
75	796 X 996	76	56,76,96,116,136,156,196	56,76	96,116,136,156	27	46	40 or 42	54	20

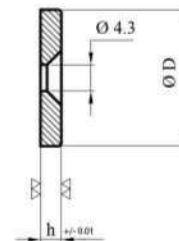
SN 100 : Locating Guide Pillar with head



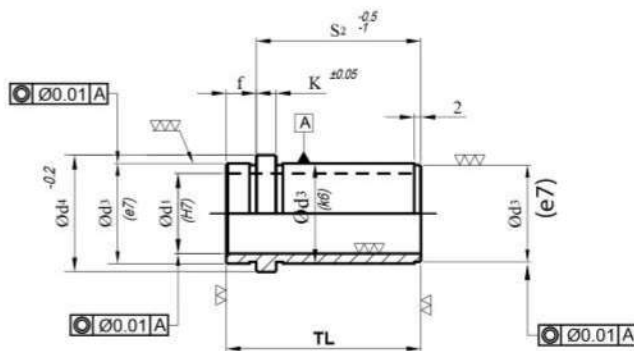
SN 103 : Locating Guide Pillar without head



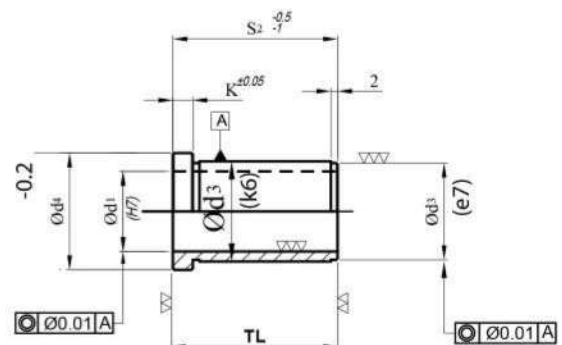
SN 155 : Stop Disc for Ejector Plate



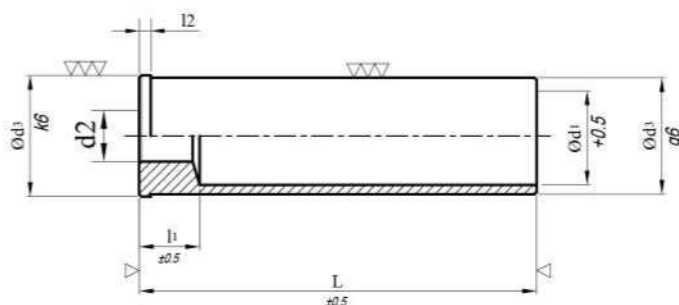
SN 110 : Locating Guide Bush with head



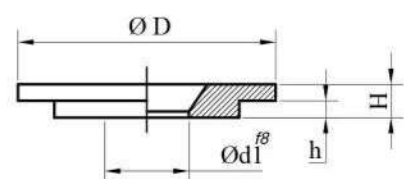
SN 111: Locating Guide Bush without head



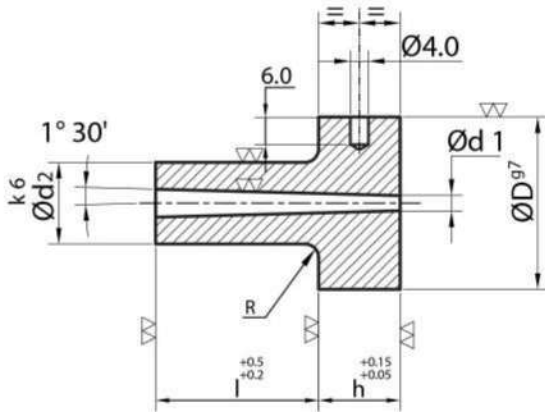
SN 120 : Centering Sleeve



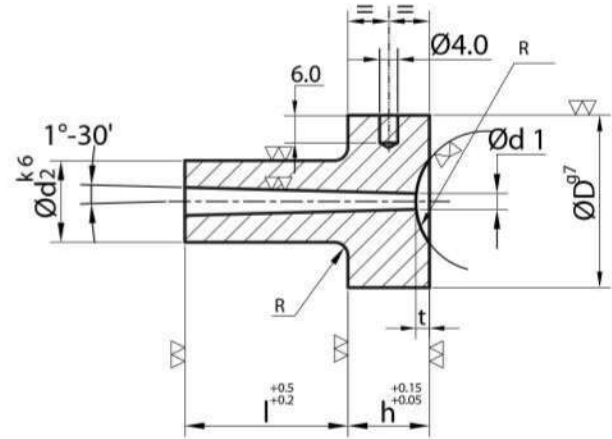
SN 200 : Locating Ring



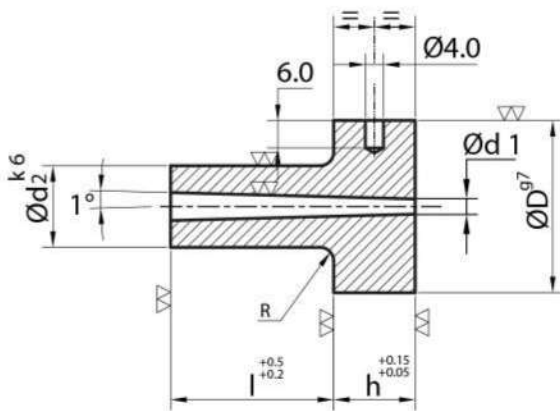
SN 151P : Sprue Bush (Plain Type)



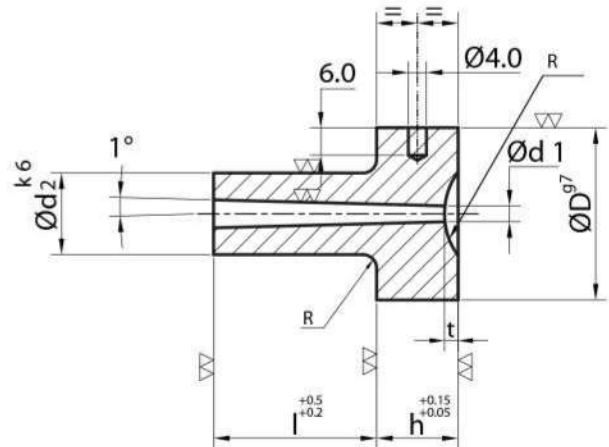
SN 151R : Sprue Bush (Radius Type)



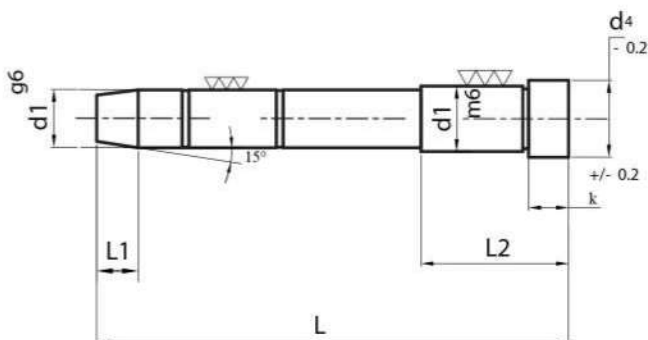
SN 611P : Sprue Bush (Plain Type)



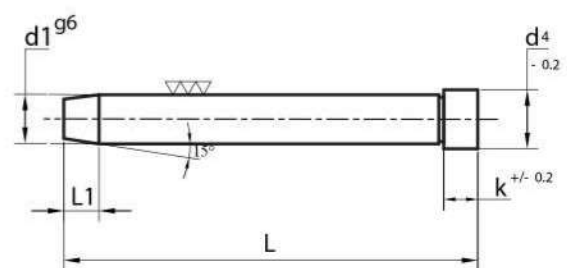
SN 611R : Sprue Bush (Radius Type)



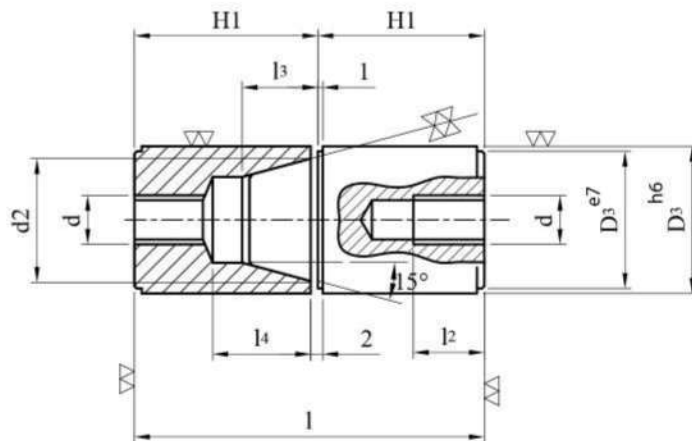
SN 0111 : Guide Pillar



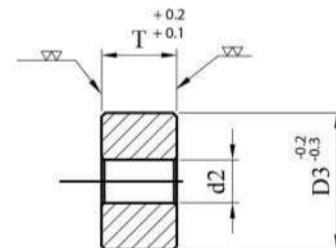
SN 101 : Angle Pin Cap



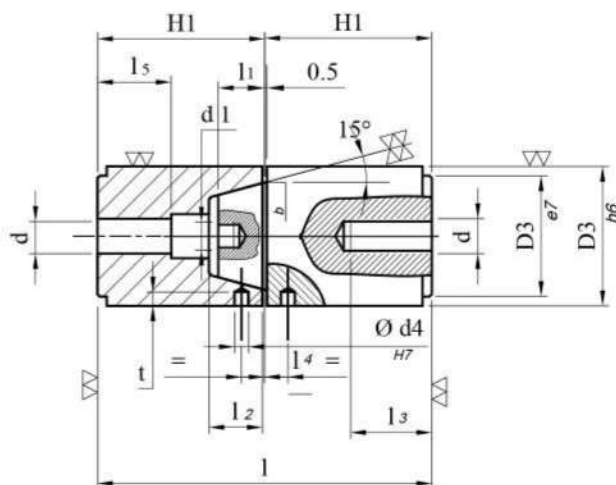
SN 105 : Locating Unit (Round)



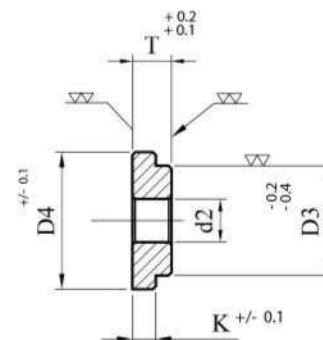
SN 0155 : Spacer for Locating Unit
(sn 105)



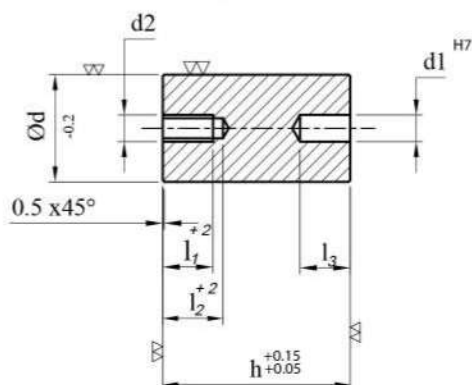
SN 106 Locating Unit (Flat)



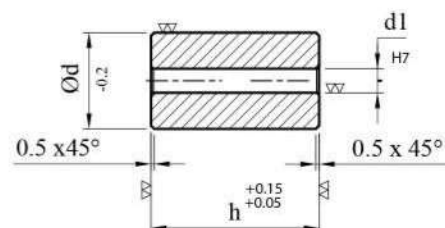
SN 0156 : Disc for Locating Unit (Flat)



SN 157 : Support Pillar



SN 671 : Support Pillar



SN 140 : Ejector Pins



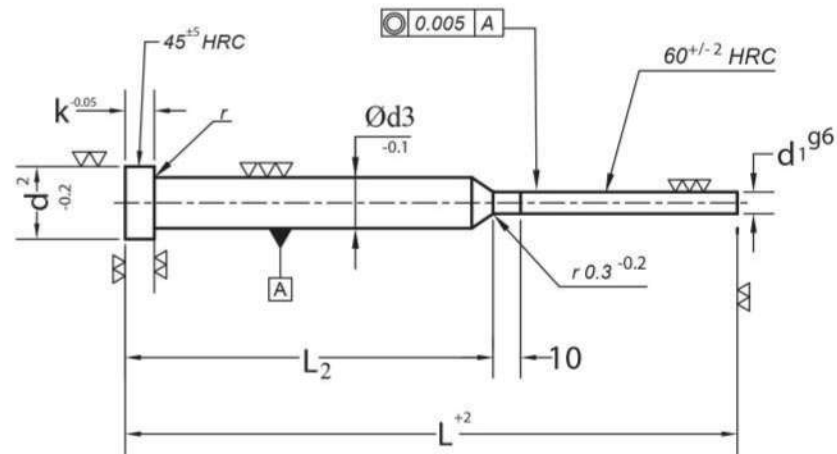
Standard : DIN 1530
 Material : EN 31 or equivalent Hardness
 Head : HRC 45 +/- 5
 Shaft : HRC 60. +/- 2 Through Hardened

SR. NO	ITEM	d1	d2	k	L+2							
					100	125	160	200	250	315	400	500
1	SN 140	1.5	3	1.5	*	*	*	*	*			
2	SN 140	2	4	2	*	*	*	*	*	*		
3	SN 140	2.5	5	2	*	*	*	*	*	*		
4	SN 140	3	6	3	*	*	*	*	*	*	*	
5	SN 140	3.5	7	3	*	*	*	*	*	*	*	
6	SN 140	4	8	3	*	*	*	*	*	*	*	*
7	SN 140	4.5	8	3	*	*	*	*	*	*	*	*
8	SN 140	5	10	3	*	*	*	*	*	*	*	*
9	SN 140	5.5	10	3	*	*	*	*	*	*	*	*
10	SN 140	6	12	5	*	*	*	*	*	*	*	*
11	SN 140	6.5	12	5	*	*	*	*	*	*	*	*
12	SN 140	7	12	5	*	*	*	*	*	*	*	*
13	SN 140	7.5	12	5	*	*	*	*	*	*	*	*
14	SN 140	8	14	5	*	*	*	*	*	*	*	*
15	SN 140	8.5	14	5	*	*	*	*	*	*	*	*
16	SN 140	9	14	5	*	*	*	*	*	*	*	*
17	SN 140	10	16	5	*	*	*	*	*	*	*	*
18	SN 140	10.5	16	5	*	*	*	*	*	*	*	*
19	SN 140	11	18	5	*	*	*	*	*	*	*	*
20	SN 140	12	20	7	*	*	*	*	*	*	*	*
21	SN 140	12.5	20	7	*	*	*	*	*	*	*	*
22	SN 140	14	22	7	*	*	*	*	*	*	*	*
23	SN 140	16	22	7	*	*	*	*	*	*	*	*
24	SN 140	18	24	7	*	*	*	*	*	*	*	*
25	SN 140	20	26	8	*	*	*	*	*	*	*	*
26	SN 140	25	32	10			*	*	*	*	*	*
27	SN 140	32	40	10			*	*	*	*	*	*

Ordering example : SN140xd₁XL=No of pcs.

All Dimension are In m.m.

SN 144 : Ejector Pin Cylindrical Head Stepped



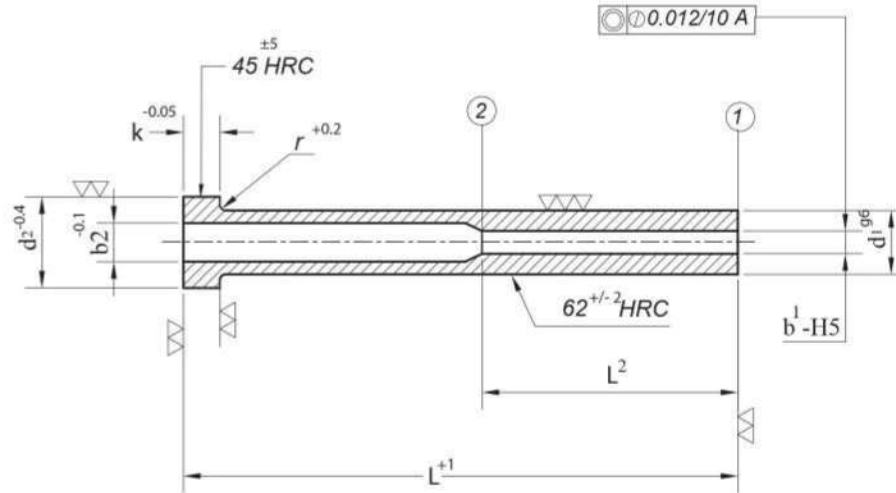
Matl:- High grade steel.

Shape Type 'c'.

Sr. No..	Item code	d2	k	d3	L2	d1	L
	ITEM/d1 XL						
1	SN 144 / 1.4 X 60	4	2	2	25	1.4	60
2	SN 144 / 1.4 X 80	4	2	2	35	1.4	80
3	SN 144 / 1.4 X 60	4	2	2	50	1.4	100
4	SN 144 / 1.4 X 80	4	2	2	50	1.4	125
5	SN 144 / 1.4 X 60	4	2	2	75	1.4	160
6	SN 144 / 1.4 X 80	4	2	2	75	1.4	200
7	SN 144 / 1.5 X 60	6	3	3	25	1.5	60
8	SN 144 / 1.5 X 80	6	3	3	35	1.5	80
9	SN 144 / 1.5 X 100	6	3	3	50	1.5	100
10	SN 144 / 1.5 X 160	6	3	3	75	1.5	160
11	SN 144 / 1.5 X 200	6	3	3	75	1.5	200
12	SN 144 / 1.6 X 60	6	3	3	25	1.6	60
13	SN 144 / 1.6 X 80	6	3	3	35	1.6	80
14	SN 144 / 1.6 X 100	6	3	3	50	1.6	100
15	SN 144 / 1.6 X 160	6	3	3	75	1.6	160
16	SN 144 / 1.6 X 200	6	3	3	75	1.6	200
17	SN 144 / 1.8 X 80	6	3	3	35	1.8	80
18	SN 144 / 1.8 X 100	6	3	3	50	1.8	100
19	SN 144 / 1.8 X 200	6	3	3	75	1.8	200
20	SN 144 / 1.9 X 80	6	3	3	35	1.9	80
21	SN 144 / 1.9 X 100	6	3	3	50	1.9	100
22	SN 144 / 1.9 X 160	6	3	3	75	1.9	160
23	SN 144 / 2.0 X 80	6	3	3	35	2	80
24	SN 144 / 2.0 X 100	6	3	3	50	2	100
25	SN 144 / 2.0 X 160	6	3	3	75	2	160
26	SN 144 / 2.0 X 200	6	3	3	75	2	200
27	SN 144 / 2.0 X 250	6	3	3	100	2	250

All Dimension are In m.m.

SN 145 : Ejector Sleeve



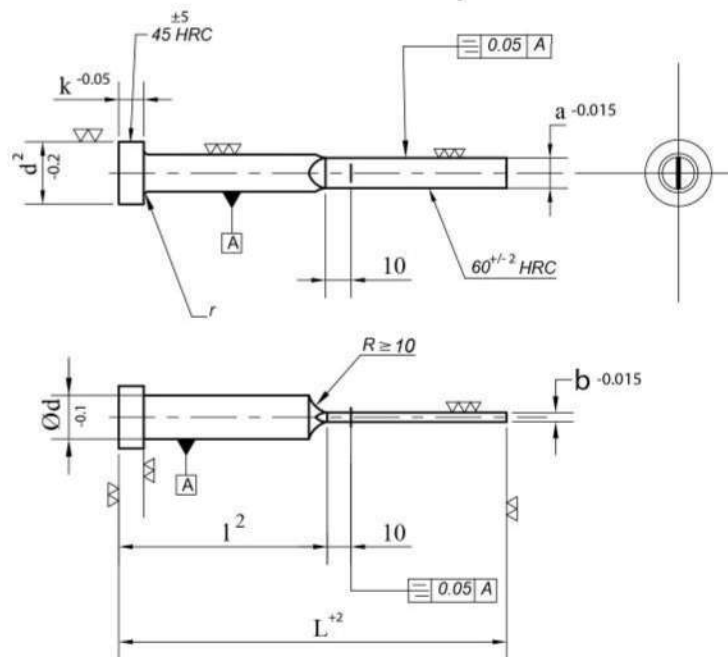
Matl : High grade steel.

Shape Type 'S'.

Sr. No.	Item code	d1	r	d2	k	b2	L2	b1	L
	b1 / L								
1	SN 145 / 1.5 X 60	3	0.3	6	3	1.8	35	1.5	60
2	SN 145 / 1.5 X 75	3	0.3	6	3	1.8	35	1.5	75
3	SN 145 / 1.5 X 100	3	0.3	6	3	1.8	35	1.5	100
4	SN 145 / 1.5 X 125	3	0.3	6	3	1.8	35	1.5	125
5	SN 145 / 1.6 X 75	3	0.3	6	3	1.9	35	1.6	75
6	SN 145 / 1.6 X 100	3	0.3	6	3	1.9	35	1.6	100
7	SN 145 / 1.6 X 125	3	0.3	6	3	1.9	35	1.6	125
8	SN 145 / 1.6 X 150	3	0.3	6	3	1.9	35	1.6	150
9	SN 145 / 2.0 X 75	4	0.3	8	3	2.4	35	2	75
10	SN 145 / 2.0 X 100	4	0.3	8	3	2.4	35	2	100
11	SN 145 / 2.0 X 125	4	0.3	8	3	2.4	35	2	125
12	SN 145 / 2.0 X 150	4	0.3	8	3	2.4	35	2	150
13	SN 145 / 2.5 X 75	5	0.3	10	3	3	35	2.5	75
14	SN 145 / 2.5 X 100	5	0.3	10	3	3	35	2.5	100
15	SN 145 / 2.5 X 125	5	0.3	10	3	3	35	2.5	125
16	SN 145 / 2.5 X 150	5	0.3	10	3	3	35	2.5	150
17	SN 145 / 3 X 75	5	0.3	10	3	3.3	45	3	75
18	SN 145 / 3 X 100	5	0.3	10	3	3.3	45	3	100
19	SN 145 / 3 X 125	5	0.3	10	3	3.3	45	3	125
20	SN 145 / 3 X 150	5	0.3	10	3	3.3	45	3	150
21	SN 145 / 3 X 175	5	0.3	10	3	3.3	45	3	175
22	SN 145 / 3 X 75	6	0.5	12	5	4	45	3.5	75
23	SN 145 / 3.5 X 100	6	0.5	12	5	4	45	3.5	100
24	SN 145 / 3.5 X 125	6	0.5	12	5	4	45	3.5	125
25	SN 145 / 3.5 X 150	6	0.5	12	5	4	45	3.5	150
26	SN 145 / 3.5 X 175	6	0.5	12	5	4	45	3.5	175
22	SN 145 / 3.7 X 75	6	0.5	12	5	4	45	3.7	75
23	SN 145 / 3.7 X 100	6	0.5	12	5	4	45	3.7	100
24	SN 145 / 3.7 X 125	6	0.5	12	5	4	45	3.7	125
25	SN 145 / 3.7 X 150	6	0.5	12	5	4	45	3.7	150
26	SN 145 / 3.7 X 175	6	0.5	12	5	4	45	3.7	175

All Dimension are In m.m.

SN 146 : Blade Ejector



Matl : 120 vv4 or Similar


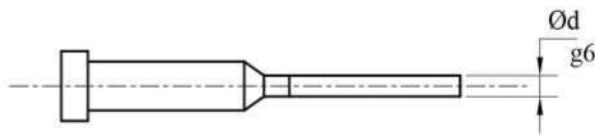
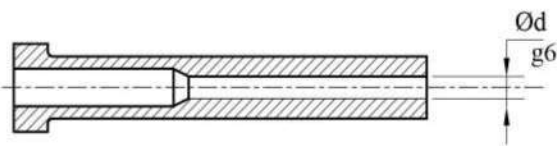
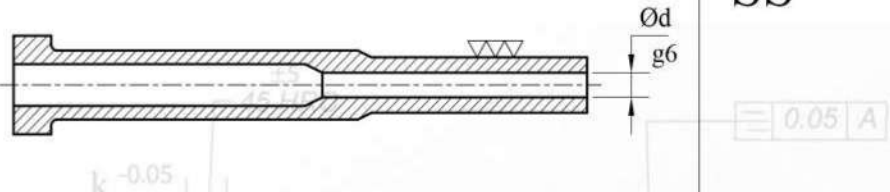
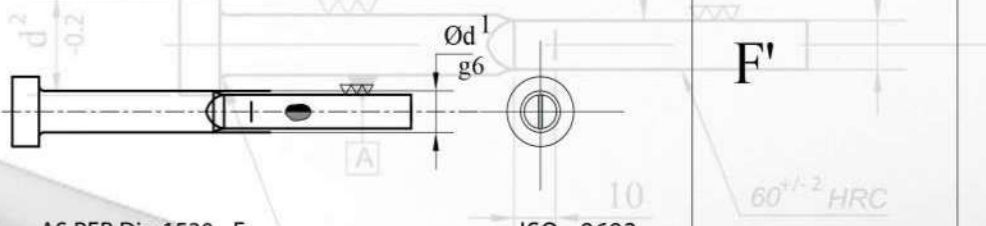
High carbon cr. steel.

Sr.No.	Item code	d	d2	k	r	L2	a	b	L
	a x b x L								
1	SN 146 / 4.5 X 1.2 / 80	5	8	3	0.3	40	4.5	1.2	80
2	SN 146 / 4.5 X 1.2 / 100	5	8	3	0.3	50	4.5	1.2	100
3	SN 146 / 4.5 X 1.2 / 125	5	8	3	0.3	60	4.5	1.2	125
4	SN 146 / 4.5 X 1.5 / 100	5	10	3	0.3	50	4.5	1.5	100
5	SN 146 / 4.5 X 1.5 / 125	5	10	3	0.3	60	4.5	1.5	125
6	SN 146 / 5.5 X 1.2 / 80	6	12	3	0.3	40	5.5	1.2	80
7	SN 146 / 5.5 X 1.2 / 100	6	12	5	0.3	50	5.5	1.2	100
8	SN 146 / 5.5 X 1.2 / 125	6	12	5	0.3	60	5.5	1.2	125
9	SN 146 / 5.5 X 1.5 / 100	6	12	5	0.5	50	5.5	1.5	100
10	SN 146 / 5.5 X 1.5 / 160	6	12	5	0.5	80	5.5	1.5	160
11	SN 146 / 5.5 X 2 / 125	6	12	5	0.5	60	5.5	2	125
12	SN 146 / 5.5 X 2 / 160	6	12	5	0.5	80	5.5	2	160
13	SN 146 / 5.5 X 2 / 200	6	12	5	0.5	100	5.5	2	200
14	SN 146 / 7.5 X 1.2 / 100	8	14	5	0.5	50	7.5	1.2	100
15	SN 146 / 7.5 X 1.5 / 125	8	14	5	0.5	60	7.5	1.5	125
16	SN 146 / 7.5 X 1.5 / 160	8	14	5	0.5	80	7.5	1.5	160
17	SN 146 / 7.5 X 2 / 160	8	14	5	0.5	80	7.5	2	160
18	SN 146 / 7.5 X 2 / 200	8	14	5	0.5	100	7.5	2	200
19	SN 146 / 9.5 X 1.5 / 160	10	16	5	0.5	80	9.5	1.5	160
20	SN 146 / 9.5 X 2 / 200	10	16	5	0.5	100	9.5	2	200
21	SN 146 / 9.5 X 2 / 250	10	16	5	0.5	125	9.5	2	250
22	SN 146 / 9.5 X 2 / 315	10	16	5	0.5	160	9.5	2	315
23	SN 146 / 11.5 X 2 / 200	12	20	7	0.8	100	11.5	2	200
24	SN 146 / 11.5 X 2 / 250	12	20	7	0.8	125	11.5	2	250
25	SN 146 / 11.5 X 2.5 / 200	12	20	7	0.8	100	11.5	2.5	200
26	SN 146 / 11.5 X 2.5 / 250	16	22	7	0.8	125	11.5	2	250
27	SN 146 / 15.5 X 2.5 / 315	16	22	7	0.8	160	11.5	2.5	315

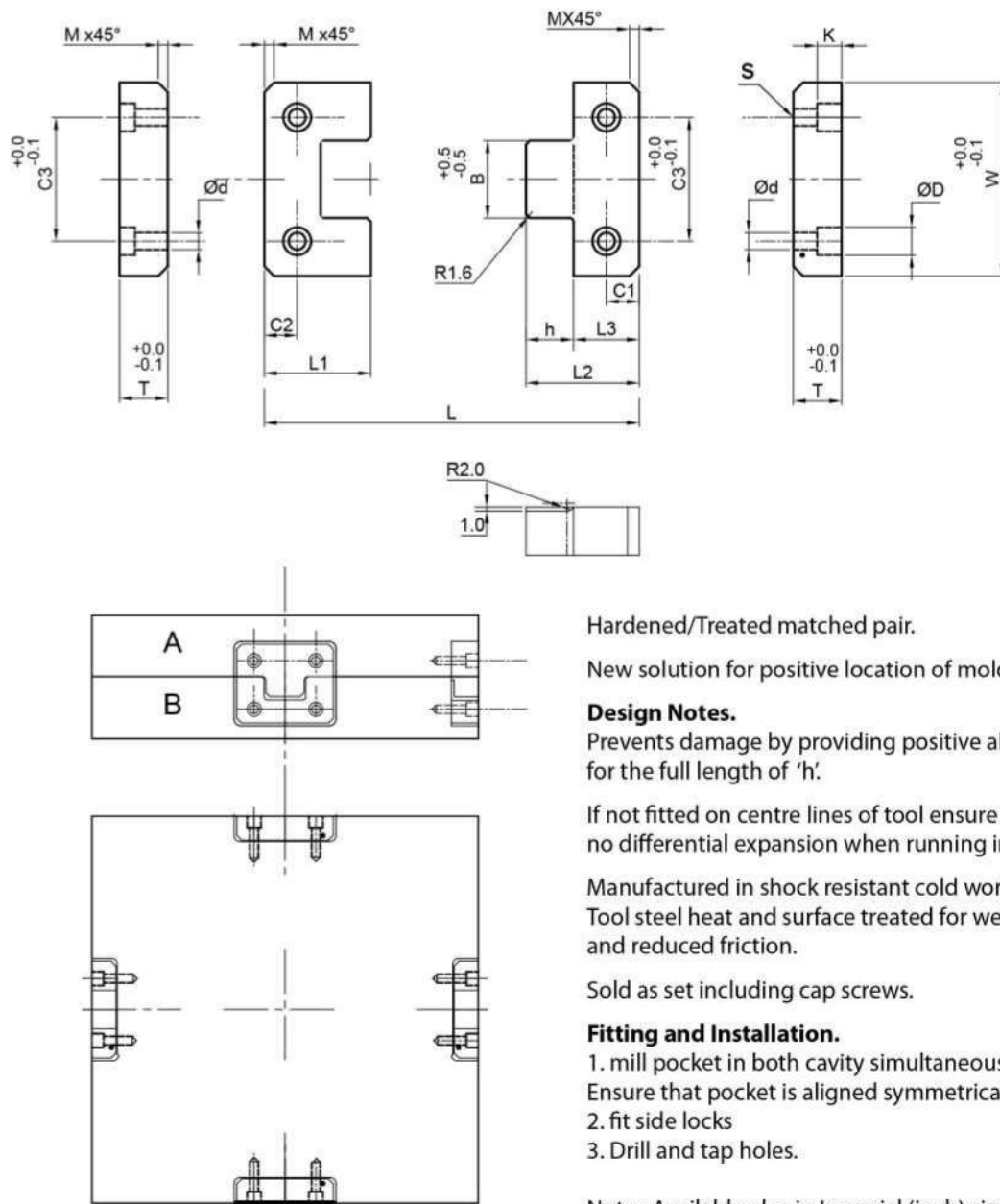
All Dimension are In m.m.

Detailed dimension sheet for each part is available on request by e-mail to contact@normalientooling.com

Normalien's Ejector Pins & Ejector Sleeves

<p>SN 140 : Ejector pin with cylindrical head.</p>  <p>AS PER Din 1530 - A</p>	<p>ISO - CODE</p> <p>FORM (SHAPE) TYPE</p>
<p>ISO - 6751</p>	<p>A'</p>
<p>SN 144 : Ejector pin cylindrical head - Stepped.</p>  <p>AS PER Din 1530 - C</p>	<p>C'</p>
<p>SN 145 : Ejector sleeve.</p>  <p>AS PER Din 16756</p>	<p>S'</p>
<p>SN 1455 : Stepped Ejector sleeve.</p> 	<p>SS'</p>
<p>SN 146 : Blade ejector.</p>  <p>AS PER Din 1530 - F</p>	<p>F'</p>

SN 945 : Side Lock for two plates



Hardened/Treated matched pair.

New solution for positive location of mold base.

Design Notes.

Prevents damage by providing positive alignment for the full length of 'h'.

If not fitted on centre lines of tool ensure that there is no differential expansion when running in press.

Manufactured in shock resistant cold work

Tool steel heat and surface treated for wear resistance and reduced friction.

Sold as set including cap screws.

Fitting and Installation.

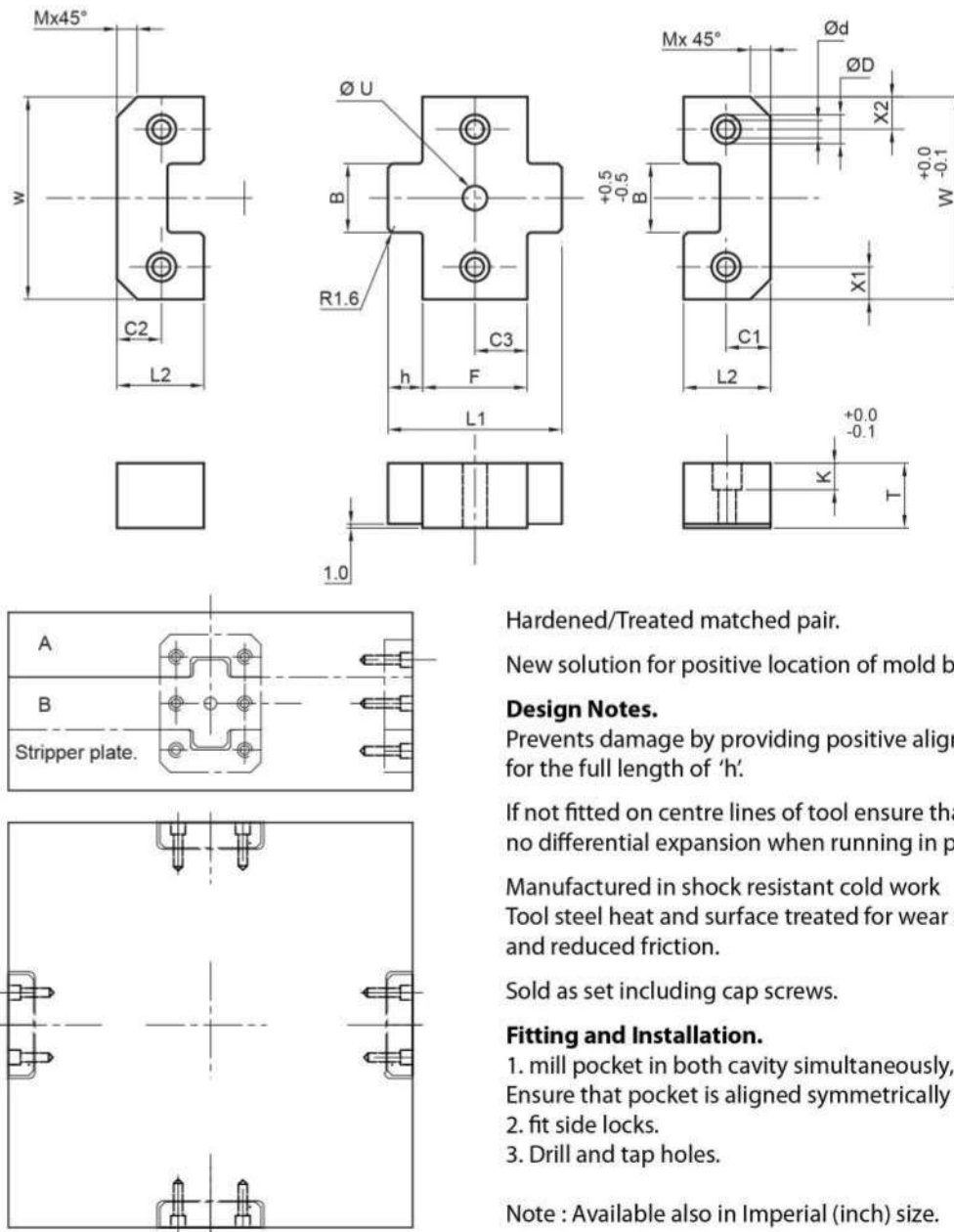
1. mill pocket in both cavity simultaneously, Ensure that pocket is aligned symmetrically and is flat.
2. fit side locks
3. Drill and tap holes.

Note : Available also in Imperial (inch) size.

Sr. No.	Item Code	W	L	B	L1	L2	T	L3	C1	C2	C3	D	d	M	K	H
1	SN945-40A	40	44	12	22.0	30.0	13	22.0	7.0	7.0	22	10.5	6.5	5.0	8	8.0
2	SN945-50A	50	43	17	21.5	30.0	16	21.5	11.0	11.0	34	10.5	6.5	5.0	8	8.5
3	SN945-75A	75	72	25	36.0	50.0	19	36.0	18.0	18.0	50	16.5	10.5	8.0	12	14
4	SN945-100A	100	90	35	45.0	65.0	19	45.0	22.0	22.0	70	16.5	10.5	10.0	12	20
5	SN945-125A	125	90	45	45.0	65.0	25	45.0	22.0	22.0	84	16.5	10.5	10.0	12	20

All Dimension are In m.m.

SN 965 : Match Lock for three plates



Hardened/Treated matched pair.

New solution for positive location of mold base.

Design Notes.

Prevents damage by providing positive alignment for the full length of 'h'.

If not fitted on centre lines of tool ensure that there is no differential expansion when running in press.

Manufactured in shock resistant cold work
Tool steel heat and surface treated for wear resistance and reduced friction.

Sold as set including cap screws.

Fitting and Installation.

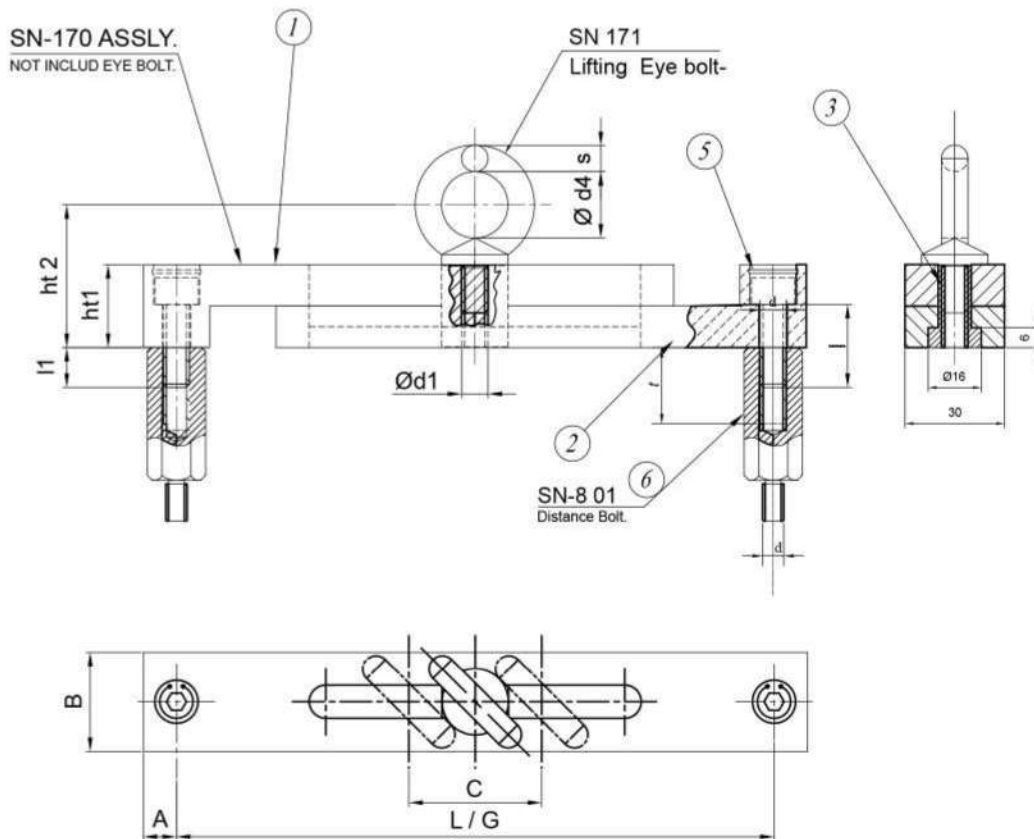
1. mill pocket in both cavity simultaneously, Ensure that pocket is aligned symmetrically and is flat.
2. fit side locks.
3. Drill and tap holes.

Note : Available also in Imperial (inch) size.

Sr. No.	Item Code	W	B	L1	D	d	L2	F	C1	X1	C3	X2	T	M	h	K	U
1	SN965-40A	40	12	43	10.5	6.5	21.5	26	11	8	18	8	16	5	8.5	8	6
2	SN965-40B	40	12	53	10.5	6.5	21.5	36	11	8	18	8	16	5	8.5	8	6
3	SN965-50A	50	17	43	10.5	6.5	21.5	26	11	8	18	8	16	5	8.5	8	6
4	SN965-50B	50	17	53	10.5	6.5	21.5	36	11	8	18	8	16	5	8.5	8	6
5	SN965-75A	75	25	51	16.5	10.5	36	26	18	12.5	18	12.5	19	5	14	12	10
6	SN965-75B	75	25	61	16.5	10.5	36	36	18	12.5	18	12.5	19	5	14	12	10
7	SN965-100A	100	35	71	16.5	10.5	45	46	22	15	18	15	19	5	20	12	10
8	SN965-100B	100	35	81	16.5	10.5	45	46	22	15	23	15	19	5	20	12	10
9	SN965-125A	125	45	71	16.5	10.5	45	365	22	20.5	18	20.5	25	5	20	12	12
10	SN965-125B	125	45	81	16.5	10.5	45	46	22	20.5	23	20.5	25	5	20	12	12

All Dimension are In m.m.

SN170 : Lifting Device

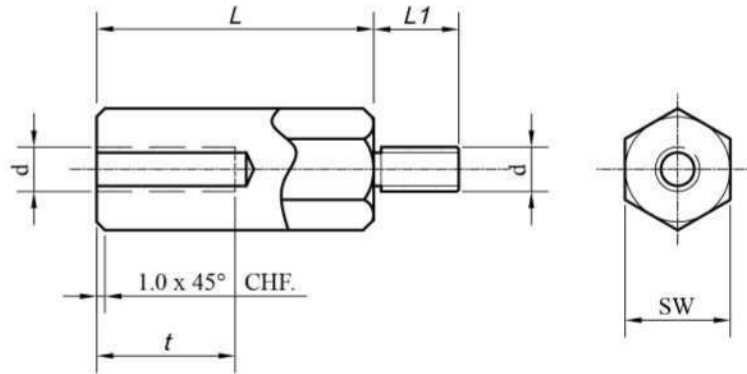


	Description	QTY
1	Top Plate	1 Nos.
2	Bottom plate	1 Nos.
3	T' SLOT - Bush Fitting	1 Nos
4	Allen-Screw for Fitting	2 Nos.
5	Circlip on Allenscrew	2 Nos
6	Distance bolt	2 Nos

ITEM No.	l1	SN-131 ldxl	A	ht 1	ht 2	ht 4	s	B	d1	L/G	KG.
SN 170 / T1	11.5	M8 X 25	10	25	43	20	8	30	M8	180 / 140	140
SN 170 / T2	14.5	M10 X 30	12.5	30	52	25	10	40	M10	300 / 210	230
SN 170 / T3	19	M16 X 40	17.5	40	70	35	14	60	M16	430 / 295	700

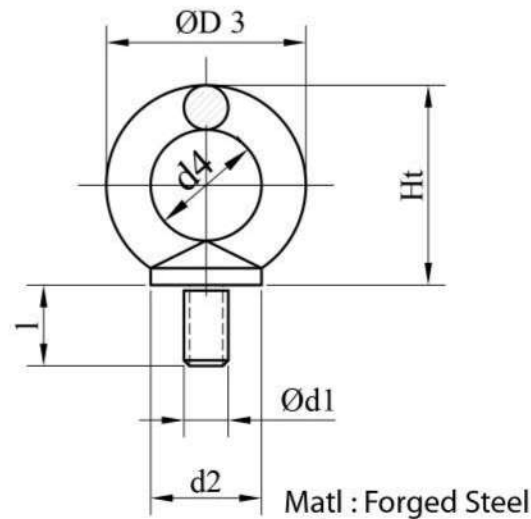
All Dimension are In m.m.

SN 801 : Distance Bolt



Item No.	t	l1	d	A/F	L
SN-801-M8	27	15	M8	19	50
SN801-M10	27	15	M10	22	50
SN-801-M16	32	20	M16	27	50

SN 171 : Lifting Eye - Bolt



ITME NO	l	d2	d3	d4	Ht	s	d1	Max.kg.
SN 171 / 8	13	20	36	20	36	8	M8	140
SN 171 / 10	17	25	45	25	45	10	M10	230
SN 171 / 12	20.5	30	54	30	53	12	M12	340
SN 171 / 16	27	35	63	35	62	14	M16	700
SN 171 / 20	30	40	72	40	71	16	M20	1200
SN 171 / 24	36	50	90	50	90	20	M24	1800
SN 171 / 30	45	65	108	60	109	24	M 30	3600

All Dimension are In m.m.



Website - www.normalientooling.com



Production plant located at Surendranagar (Gujarat).

Surendranagar (Unit - I)



**NORMALIEN TOOLING SYSTEMS PVT.
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