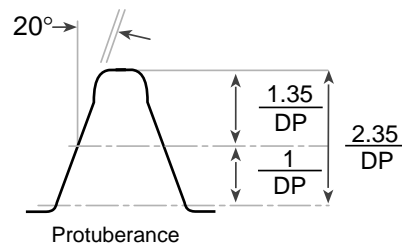
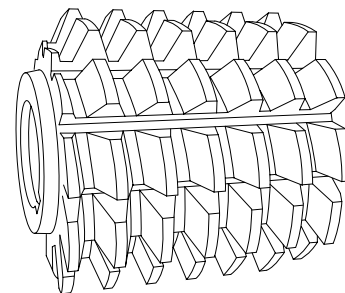


HP20 & HPL20 SERIES

DP, 20° PA

Diam. Pitch	O.D.	Length	Bore	Whole Depth	Specify Class A, B, C, D	
					Right Hand	Left Hand
2	6	8	1-1/2	1.175	HP20-200	HPL20-200
2-1/2	5	6	1-1/2	.940	HP20-250	HPL20-250
3	4-1/2	5	1-1/4	.7833	HP20-300	HPL20-300
3-1/2	4-1/4	4-3/4	1-1/4	.6714	HP20-350	HPL20-350
4	4	4	1-1/4	.5875	HP20-400	HPL20-400
4-1/2	3-1/2	3-1/2	1-1/4	.5222	HP20-450	HPL20-450
5	3-1/2	3-1/2	1-1/4	.470	HP20-500	HPL20-500
6	3-1/2	3-1/2	1-1/4	.3917	HP20-600	HPL20-600
7	3	3	1-1/4	.3357	HP20-700	HPL20-700
8	3	3	1-1/4	.2938	HP20-800	HPL20-800
9	3	3	1-1/4	.2611	HP20-900	HPL20-900
10	1-7/8	1-7/8	3/4	.235	HP20-010S	HPL20-010S
10	3	3	1-1/4	.235	HP20-010	HPL20-010
11	2-3/4	2-3/4	1-1/4	.2136	HP20-011	HPL20-011
12	1-7/8	1-7/8	3/4	.1958	HP20-012S	HPL20-012S
12	2-3/4	2-3/4	1-1/4	.1958	HP20-012	HPL20-012
14	1-7/8	1-7/8	3/4	.1679	HP20-014S	HPL20-014S
14	2-1/2	2-1/2	1-1/4	.1679	HP20-014	HPL20-014
16	1-7/8	1-7/8	3/4	.1469	HP20-016S	HPL20-016S
16	2-1/2	2-1/2	1-1/4	.1469	HP20-016	HPL20-016
18	1-7/8	1-7/8	3/4	.1306	HP20-018S	HPL20-018S
18	2-1/2	2	1-1/4	.1306	HP20-018	HPL20-018
20	1-7/8	1-7/8	3/4	.1220	HP20-020S	HPL20-020S
20	2-1/2	2	1-1/4	.1220	HP20-020	HPL20-020
22	1-7/8	1-7/8	3/4	.1111	HP20-022S	HPL20-022S
22	2-1/2	2	1-1/4	.1111	HP20-022	HPL20-022
24	1-7/8	1-7/8	3/4	.1020	HP20-024S	HPL20-024S
24	2-1/2	2	1-1/4	.1020	HP20-024	HPL20-024
26	1-7/8	1-7/8	3/4	.0943	HP20-026S	HPL20-026S
26	2-1/2	2	1-1/4	.0943	HP20-026	HPL20-026
28	1-7/8	1-7/8	3/4	.0877	HP20-028S	HPL20-028S
28	2-1/2	2	1-1/4	.0877	HP20-028	HPL20-028
30	1-7/8	1-1/2	3/4	.0820	HP20-030S	HPL20-030S
30	2-1/2	2	1-1/4	.0820	HP20-030	HPL20-030
32	1-7/8	1-7/8	3/4	.0770	HP20-032S	HPL20-032S
32	2-1/2	2	1-1/4	.0770	HP20-032	HPL20-032
36	1-7/8	1-1/2	3/4	.0687	HP20-036S	HPL20-036S
40	1-7/8	1-1/2	3/4	.0620	HP20-040S	HPL20-040S
48	1-7/8	1-1/2	3/4	.0520	HP20-048S	HPL20-048S
64	1-5/8	1-1/2	3/4	.0395	HP20-064S	HPL20-064S
72	1-5/8	1-1/2	3/4	.0353	HP20-072S	HPL20-072S
96	1-1/2	1	3/4	.0270	HP20-096S	HPL20-096S
120	1-1/2	3/4	3/4	.0220	HP20-120S	HPL20-120S

Preshave, Single Thread Right Hand & Left Hand Non-Chamfering



For 20 DP and finer, depth is $2.40/DP + .002$

Pre-shave cutters 18DP and coarser have protuberance, cutters 20 DP and finer do not have protuberance. When designing for 20DP and finer, the pressure angle will be modified slightly to aid the shaving cutter, rather than incorporating a protuberance feature.

Protuberance is generally required for parts with 16 teeth or more, to produce an undercut for shaving.

For shaving cutters, see page F-5.

**Premium Steel
PM M45 & M42 In Stock!!**

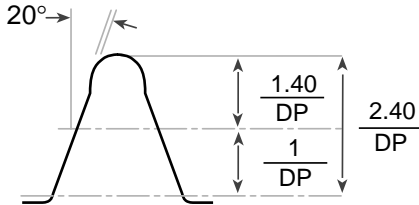
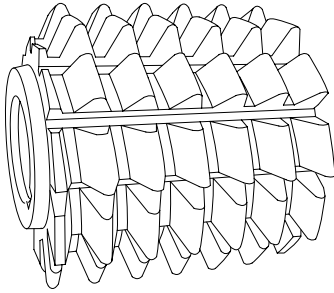
HPN20 SERIES

Same as HP20 Series, except no protuberance. Pre-shave hobs with no protuberance may be desirable for parts with low numbers of teeth wherein the natural generating process will provide sufficient undercut to clear the shaving cutter. Please phone for a quotation.

HPR20 SERIES

DP, 20° PA

**Full Fillet, Pre-Shave
Single Thread, Right Hand
Non-Chamfering**



For chamfering inquire on HPC20 Series.

**Premium Steel
PM M45 & M42 In Stock!!**

Diam. Pitch	O.D.	Length	Bore	Whole Depth	Specify Class A, B, C, D
2	6-1/4	8	1-1/2	1.200	HPR20-200
2-1/2	5 1/4	6	1-1/2	.960	HPR20-250
3	4-1/2	5	1-1/4	.800	HPR20-300
3-1/2	4-1/4	4-3/4	1-1/4	.6857	HPR20-350
4	4	4	1-1/4	.600	HPR20-400
4-1/2	3-1/2	3-1/2	1-1/4	.5333	HPR20-450
5	3-1/2	3-1/2	1-1/4	.4800	HPR20-500
6	3-1/2	3-1/2	1-1/4	.4000	HPR20-600
7	3	3	1-1/4	.3429	HPR20-700
8	3	3	1-1/4	.3000	HPR20-800
9	3	3	1-1/4	.2667	HPR20-900
10	1-7/8	1-7/8	3/4	.2400	HPR20-010S
10	3	3	1-1/4	.2400	HPR20-010
12	1-7/8	1-7/8	3/4	.2000	HPR20-012S
12	2-3/4	2-3/4	1-1/4	.2000	HPR20-012
14	1-7/8	1-7/8	3/4	.1714	HPR20-014S
14	2-1/2	2-1/2	1-1/4	.1714	HPR20-014
16	1-7/8	1-7/8	3/4	.1500	HPR20-016S
16	2-1/2	2-1/2	1-1/4	.1500	HPR20-016
18	1-7/8	1-7/8	3/4	.1333	HPR20-018S
18	2-1/2	2	1-1/4	.1333	HPR20-018

20° PRESSURE ANGLE PRESHAVE HOB TOOTH DESIGN (thousands of an inch)

NDP	Thin	Prot.
1	18-24	12-15
1.5	16-20	10-13
3	3-4	2.5-3
3.5	3-4	2.5-3
4	3-4	2.5-3
4.5	2.5-3.5	2-2.5
5	2.5-3.5	2-2.5
6	2.5-3.5	2-2.5
7	2-3	2-2.5
8	2-3	2-2.5
9	2-3	1.5-2
10	2-3	1.5-2
11	1.5-2.5	1.5-2
12	1.5-2.5	1.5-2
13	1.5-2.5	1.5-2
14	1.5-2.5	1-1.5
15	1-2	1-1.5
16	1-2	1-1.5
17	1-2	1-1.5
18	1-2	1-1.5
19	1-2	1-1.5
20-47	.5-1.5	0-1.3
48-72	.3-.7	0-.8