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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 467

PREFERRED MODULES AND DIAMETRAL PITCHES OF CYLINDRICAL GEARS FOR GENERAL ENGINEERING

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 467, *Preferred Modules and Diametral Pitches of Cylindrical Gears for General Engineering*, was drawn up by Technical Committee ISO/TC 60, *Gears*, the Secretariat of which is held by the Institut Belge de Normalisation (IBN).

Work on this question by the Technical Committee began in 1956 and led, in 1961, to the adoption of a Draft ISO Recommendation.

In July 1963, this Draft ISO Recommendation (No. 591) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Argentina	Greece	Poland
Austria	India	Spain
Belgium	Italy	Sweden
Chile	Korea, Rep. of	Switzerland
Colombia	Netherlands	United Kingdom
France	New Zealand	Yugoslavia
Germany	Norway	

Four Member Bodies opposed the approval of the Draft:

Australia
Czechoslovakia
Hungary
U.S.S.R.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council which decided, in January 1966, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 467 January 1966

PREFERRED MODULES AND DIAMETRAL PITCHES OF CYLINDRICAL GEARS FOR GENERAL ENGINEERING

INTRODUCTION

This ISO Recommendation defines ranges of modules and diametral pitches graduated very regularly, in progressions near to that of preferred numbers series, by selection from the two ranges of modules and diametral pitches of ISO Recommendation R 54, *Modules and Diametral Pitches of Cylindrical Gears for General Engineering*.

This ISO Recommendation has been established for the convenience of those countries which desire to adopt a regularly graduated series of modules and diametral pitches.

1. PREFERRED MODULES (m) AND DIAMETRAL PITCHES (P)

1.1 Principal and complementary sizes

Serial number	Preferred number	Principal sizes R 5 Ratio $\sqrt[5]{10}$	Principal sizes R 10 Ratio $\sqrt[10]{10}$	Principal sizes R 20 Ratio $\sqrt[20]{10}$	Complementary sizes	Preferred number	Serial number
0	100	m 1	m 1	m 1	P 24	106	1
2	112			m 1.125	—	118	3
4	125		m 1.25	m 1.25	—	132	5
6	140			P 18	m 1.5	150	7
8	160	P 16	P 16	P 16	—	170	9
10	180			m 1.75	—	190	11
12	200		m 2	m 2	P 12	212	13
14	224			m 2.25	—	236	15
16	250	m 2.5	m 2.5	m 2.5	—	265	17
18	280			P 9	m 3	300	19
20	315		P 8	P 8	—	335	21
22	355			m 3.5	—	375	23
24	400	m 4	m 4	m 4	P 6	425	25
26	450			m 4.5	—	475	27
28	500		m 5	m 5	—	530	29
30	560			P 4.5	m 6	600	31
32	630	P 4	P 4	P 4	—	670	33
34	710			m 7	—	750	35
36	800		m 8	m 8	P 3	850	37
38	900			m 9	—	950	39
40	1000	m 10	m 10	m 10	—	1060	41
42	1120			P 2.25	m 12	1180	43
44	1250		P 2	P 2	—	1320	45
46	1400			m 14	—	1500	47
48	1600	m 16	m 16	m 16	P 1.5	1700	49
50	1800			m 18	—	1900	51
52	2000		m 20	m 20			

1.2 Principal and derived series

Serial number	Ratio: 1.6				Ratio: 1.4				Ratio: 1.25		Ratio 1.18	Ratio 1.12
	R 5	R 10/2	R 20/4	R 20/4	R 20/3	R 20/3	R 40/6	R 40/6	R 10	R 20/2	R 40/3	R 20
0	m 1				m 1				m 1			m 1
1							P 24				P 24	
2			m 1.125			m 1.125				m 1.125		m 1.125
3												
4		m1.25						m 1.25	m 1.25		m 1.25	m 1.25
5												
6				P 18	P 18					P 18		P 18
7							m 1.5				m 1.5	
8	P 16					P 16			P 16			P 16
9												
10			m 1.75					m 1.75		m 1.75	m 1.75	m 1.75
11												
12		m 2			m 2				m 2			m 2
13							P 12				P 12	
14				m 2.25		m 2.25				m 2.25		m 2.25
15												
16	m 2.5							m 2.5	m 2.5		m 2.5	m 2.5
17												
18			P 9		P 9					P 9		P 9
19							m 3				m 3	
20		P 8				P 8			P 8			P 8
21												
22				m 3.5				m 3.5		m 3.5	m 3.5	m 3.5
23												
24	m 4				m 4				m 4			m 4
25							P 6				P 6	
26			m 4.5			m 4.5				m 4.5		m 4.5
27												
28		m 5						m 5	m 5		m 5	m 5
29												
30				P 4.5	P 4.5					P 4.5		P 4.5
31							m 6				m 6	
32	P 4					P 4			P 4			P 4
33												
34			m 7					m 7		m 7	m 7	m 7
35												
36		m 8			m 8				m 8			m 8
37							P 3				P 3	
38				m 9		m 9				m 9		m 9
39												
40	m 10							m 10	m 10		m 10	m 10
41												
42			P 2.25		P 2.25					P 2.25		P 2.25
43							m 12				m 12	
44		P 2				P 2			P 2			P 2
45												
46				m 14				m 14		m 14	m 14	m 14
47												
48	m 16				m 16				m 16			m 16
49							P 1.5				P 1.5	
50			m 18			m 18				m 18		m 18
51												
52		m 20						m 20	m 20		m 20	m 20

2. DIMENSIONS

2.1 Dimensions in millimetres

Serial number	Designation		Pitch	Base pitch	Module	Height of tooth
	Modules	Diametral pitches	p	$p_b = p \cos 20°$	p/π	$2.25\ p/\pi$
0	m 1	—	3.141 593	2.952 131	1	2.250
(1)	—	(P 24)	3.324 852	3.124 339	1.058 333	2.381
2	m 1.125	—	3.534 292	3.321 148	1.125	2.531
4	m 1.25	—	3.926 991	3.690 164	1.25	2.812
6	—	P 18	4.433 136	4.165 786	1.411 111	3.175
(7)	(m 1.5)	—	4.712 389	4.428 197	1.5	3.375
8	—	P 16	4.987 278	4.686 509	1.5875	3.572
10	m 1.75	—	5.497 787	5.166 230	1.75	3.938
12	m 2	—	6.283 185	5.904 263	2	4.500
(13)	—	(P 12)	6.649 704	6.248 678	2.116 667	4.762
14	m 2.25	—	7.068 583	6.642 296	2.25	5.062
16	m 2.5	—	7.853 982	7.380 329	2.5	5.625
18	—	P 9	8.866 273	8.331 571	2.822 222	6.350
(19)	(m 3)	—	9.424 778	8.856 394	3	6.750
20	—	P 8	9.974 557	9.373 017	3.175	7.144
22	m 3.5	—	10.995 57	10.332 46	3.5	7.875
24	m 4	—	12.566 37	11.808 53	4	9.000
(25)	—	(P 6)	13.299 41	12.497 36	4.233 333	9.525
26	m 4.5	—	14.137 17	13.284 59	4.5	10.125
28	m 5	—	15.707 96	14.760 66	5	11.250
30	—	P 4.5	17.732 55	16.663 14	5.644 444	12.700
(31)	(m 6)	—	18.849 56	17.712 79	6	13.500
32	—	P 4	19.949 11	18.746 03	6.35	14.288
34	m 7	—	21.991 15	20.664 92	7	15.750
36	m 8	—	25.132 74	23.617 05	8	18.000
(37)	—	(P 3)	26.598 82	24.994 71	8.466 667	19.050
38	m 9	—	28.274 33	26.569 18	9	20.250
40	m 10	—	31.415 93	29.521 31	10	22.500
42	—	P 2.25	35.465 09	33.326 28	11.288 889	25.400
(43)	(m 12)	—	37.699 11	35.425 58	12	27.000
44	—	P 2	39.898 23	37.492 07	12.7	28.575
46	m 14	—	43.982 30	41.329 84	14	31.500
48	m 16	—	50.265 48	47.234 10	16	36.000
(49)	—	(P 1.5)	53.197 64	49.989 43	16.933 333	38.100
50	m 18	—	56.548 67	53.138 37	18	40.500
52	m 20	—	62.831 85	59.042 63	20	45.000

The values between brackets correspond to the R 40/3 and R 40/6 derived series.