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<]XfcX]bUa ] b]fUX]U b]Xfgb]`YyU]`nU bYdfY\_]b^Ybc`cVfUrcj Ub^Y!`JU^Ugh]`YyU]!`&"  
XY.: i b\_WY^Zi dcfUV^YbY`nUX]a Ybn]cb]fUb^Y

Hydrodynamic plain journal bearings under steady-state conditions -- Circular cylindrical bearings -- Part 2: Functions used in the calculation procedure

## **iTeh STANDARD PREVIEW**

Paliers lisses hydrodynamiques (radiaux) fonctionnant en régime stabilisé -- Paliers circulaires cylindriques -- Partie 2: Fonctions utilisées pour le calcul

[SIST ISO 7902-2:2002](https://standards.iteh.ai/catalog/standards/sist/d4ce017b-0bc5-4d49-be73-24591d203c3/sist-iso-7902-2-2002)

Ta slovenski standard je istoveten z: **ISO 7902-2:1998**

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**en**

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INTERNATIONAL  
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7902-2

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**Hydrodynamic plain journal bearings under  
steady-state conditions — Circular  
cylindrical bearings —**

**Part 2:**

Functions used in the calculation procedure

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Reference number  
ISO 7902-2:1998(E)

## ISO 7902-2:1998(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 7902-2 was prepared by Technical Committees ISO/TC 123, *Plain bearings*, Subcommittee SC 4, *Methods of calculation of plain bearings*.

ISO 7902 consists of the following parts, under the general title *Hydrodynamic plain journal bearings under steady-state conditions* — *Circular cylindrical bearings*:

- *Part 1: Calculation procedure*
- *Part 2: Functions used in the calculation procedure*
- *Part 3: Permissible operational parameters*

Annex A of this part of ISO 7902 is for information only.

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# Hydrodynamic plain journal bearings under steady-state conditions — Circular cylindrical bearings —

## Part 2: Functions used in the calculation procedure

### 1 Scope

This part of ISO 7902 specifies the values of the basic functions used in the calculation procedure for oil-lubricated circular cylindrical hydrodynamic bearings under conditions of full lubrication.

The values are given for the assumptions and boundary conditions given in ISO 7902-1. The values necessary for the calculation may be determined from the tables of bearing characteristics, the graphs and from the equations.

The descriptions of the symbols used and calculation examples are given in ISO 7902-1.

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### 2 Normative references

SIST ISO 7902-2:2002

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 7902. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 7902 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3448:1992, *Industrial liquid lubricants — ISO viscosity classification*.

ISO 7902-1:1998, *Hydrodynamic plain journal bearings under steady-state conditions — Circular cylindrical bearings — Part 1: Calculation procedure*.

### 3 Tables of basic bearing characteristics

Tables 1 to 30 give

- the attitude angle,  $\beta$ ,
- The Sommerfeld number,  $S_o$ ,
- the specific coefficient of friction, taking account of the unloaded area of lubricant film,  $f'/\psi$ ,
- the specific coefficient of friction in the loaded area of the lubricant film,  $f/\psi$ ,
- The coefficient of lubricant flow rate, parameter  $Q_3^*$ , due to generation of the internal pressure, as a function of angular span,  $\Omega$ , relative eccentricity  $\varepsilon$  and relative bearing width  $B/D$ ,

for various values of  $\varepsilon$ ,  $\Omega$  and  $B/D$ .

**Table 1 — Values of the basic characteristics for  $\Omega = 360^\circ$  and  $B/D = 1,5$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	72,523 6	0,427 3	7,599 2	4,968 4	0,047 7
0,4	62,658 8	1,000 5	3,603 5	2,658 2	0,093 5
0,6	51,969 2	1,972 4	2,227 2	1,669 5	0,136 1
0,8	38,160 1	4,682 4	1,365 3	1,073 6	0,175 9
0,9	27,961	10,138 2	0,921 8	0,760 4	0,193 9
0,925	24,618 4	13,825 6	0,790 6	0,667 8	0,198
0,95	19,800 7	22,044	0,617 3	0,535 9	0,201
0,975	13,597 1	48,842 9	0,404	0,358 6	0,203 6

**Table 5 — Values of the basic characteristics for  $\Omega = 360^\circ$  and  $B/D = 0,5$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	75,818 8	0,778 8	41,264 1	26,832 2	0,023 3
0,4	61,762 8	0,202 6	17,087 5	12,010 1	0,046 8
0,6	47,970 3	0,499 5	8,083 7	5,856 1	0,070 3
0,8	32,965 3	1,74	3,226 7	2,369 8	0,093 8
0,9	23,503 7	5,157 9	1,576 8	1,260 4	0,105 4
0,925	20,317 1	7,916 8	1,205	0,992	0,108 2
0,95	16,529 2	14,175 7	0,844 9	0,719 8	0,110 7
0,975	11,716 4	36,438	0,487	0,415	0,112 8

**Table 2 — Values of the basic characteristics for  $\Omega = 360^\circ$  and  $B/D = 1,25$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	73,342 7	0,341	9,497 8	6,201 6	0,044 4
0,4	62,653 3	0,815 5	4,380 8	3,245 7	0,087 6
0,6	51,390 1	1,671 5	2,583 7	1,925 7	0,128 7
0,8	37,247 4	4,210 7	1,485 5	1,128 5	0,167 9
0,9	27,270 1	9,462 1	0,967 8	0,794 9	0,186 0
0,925	23,958 6	13,083 9	0,819 7	0,690 0	0,190 1
0,95	19,304 5	21,127 1	0,633 2	0,548 4	0,193 6
0,975	13,315 4	47,533 2	0,409 7	0,363 1	0,195 9

**Table 6 — Values of the basic characteristics for  $\Omega = 360^\circ$  and  $B/D = 0,25$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	75,852 2	0,020 9	153,245 2	99,557 1	0,012 3
0,4	61,484 3	0,056	61,556 7	41,887 9	0,024 6
0,6	47,407 6	0,146	27,106 5	18,705 8	0,036 8
0,8	31,289 6	0,605 3	8,857 7	6,396 1	0,049 2
0,9	21,531 5	2,203 7	3,435 6	2,697 2	0,055 3
0,925	18,530 6	3,670 7	2,399 4	1,942 4	0,056 8
0,95	15,078	7,346 6	1,493 1	1,254 6	0,058 2
0,975	10,779 2	22,666 5	0,714 9	0,563 2	0,059 5

**Table 3 — Values of the basic characteristics for  $\Omega = 360^\circ$  and  $B/D = 1$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	74,208	0,249 2	12,958	8,448 9	0,039 4
0,4	62,574 4	0,611	5,786 8	4,272 1	0,078 5
0,6	50,454 5	1,318 2	3,210 2	2,376 1	0,116 4
0,8	36,027 8	3,595 5	1,691 5	1,276 6	0,153 3
0,9	26,368 5	8,520 3	1,045 7	0,853 7	0,170 8
0,925	23,072 6	12,034 2	0,868 2	0,727 5	0,174 8
0,95	18,639 2	19,799	0,659 9	0,569 6	0,178 3
0,975	12,938 8	45,572 1	0,419 3	0,371	0,180 8

**Table 7 — Values of the basic characteristics for  $\Omega = 180^\circ$  and  $B/D = 1,5$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	66,676 7	0,378 1	8,571 8	4,556 5	0,038 5
0,4	54,239 5	0,871 1	4,097 2	2,442 4	0,062 8
0,6	44,217 1	1,752 8	2,449 6	1,680 3	0,075 5
0,8	32,582	4,353 1	1,418 2	1,139 1	0,075
0,9	24,256	9,698 7	0,916 1	0,796	0,067 5
0,925	21,517 7	13,445 1	0,784 6	0,678 2	0,063 2
0,95	18,655 7	20,525 9	0,642 3	0,549 5	0,058 9
0,975	12,665 2	47,276 1	0,405 9	0,370 1	0,050 1

**Table 4 — Values of the basic characteristics for  $\Omega = 360^\circ$  and  $B/D = 0,75$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	75,022	0,158 4	20,390 9	13,237 2	0,325 5
0,4	62,258 4	0,399 3	8,760 6	6,183	0,065
0,6	49,355 4	0,915 5	4,516 7	3,316 1	0,097 2
0,8	34,514 4	2,784 8	2,106 7	1,571 2	0,129 2
0,9	25,188 7	7,161 4	1,197 9	0,969 6	0,144 7
0,925	21,882 3	10,461 1	0,962 7	0,801	0,148 3
0,95	17,739 3	17,736 3	0,711 9	0,611 4	0,151 6
0,975	12,426 4	42,382 9	0,438 4	0,386 9	0,153

**Table 8 — Values of the basic characteristics for  $\Omega = 180^\circ$  and  $B/D = 1,25$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	67,708 5	0,310 6	10,415 5	5,514 6	0,036 9
0,4	55,202 7	0,732 6	4,843 1	2,866 6	0,061 5
0,6	44,364 2	1,531 2	2,774 4	1,893 1	0,074 8
0,8	32,449 1	3,981 9	1,529 6	1,224 8	0,074 7
0,9	24,033 7	9,227 9	0,964 3	0,822	0,068 2
0,925	21,247	12,858 4	0,810 6	0,707 5	0,064 2
0,95	18,433	19,947 1	0,654 9	0,558 9	0,060 1
0,975	12,347 1	46,753 5	0,406 6	0,370 6	0,050 7

**Table 9 — Values of the basic characteristics for  $\Omega = 180^\circ$  and  $B/D = 1$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	69,0182	0,2328	13,8683	7,3068	0,0338
0,4	56,4093	0,5601	6,2861	3,6873	0,0575
0,6	44,589	1,2448	3,3652	2,2797	0,0729
0,8	32,3681	3,4514	1,7312	1,3799	0,0735
0,9	23,7701	8,4037	1,039	0,9061	0,0679
0,925	20,8981	11,9405	0,8574	0,7446	0,064
0,95	18,1351	18,5775	0,691	0,5894	0,0601
0,975	11,9017	45,771	0,4094	0,3754	0,0513

**Table 13 — Values of the basic characteristics for  $\Omega = 150^\circ$  and  $B/D = 1,5$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	61,7703	0,3058	10,5742	4,7678	0,3288
0,4	47,9337	0,738	4,7933	2,489	0,0445
0,6	39,8508	1,5547	2,7181	1,6599	0,0521
0,8	30,2152	4,0616	1,4905	1,1082	0,0501
0,9	23,4459	9,2073	0,9618	0,7712	0,0437
0,925	20,432	13,0508	0,7949	0,6551	0,0403
0,95	17,262	20,5699	0,6301	0,525	0,0365
0,975	12,396	46,5565	0,4083	0,35	0,0325

**Table 10 — Values of the basic characteristics for  $\Omega = 180^\circ$  and  $B/D = 0,75$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	70,5349	0,1513	21,2824	11,1513	0,0289
0,4	57,8558	0,381	9,1663	5,3207	0,0513
0,6	45,0124	0,8883	4,6328	3,1078	0,066
0,8	32,3128	2,6987	2,154	1,705	0,0698
0,9	23,3367	7,1375	1,188	1,0322	0,0649
0,925	20,4384	10,4252	0,9546	0,8278	0,0617
0,95	17,5793	16,7465	0,7469	0,639	0,058
0,975	11,2948	43,5128	0,4204	0,3801	0,0513

**Table 14 — Values of the basic characteristics for  $\Omega = 150^\circ$  and  $B/D = 1,25$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	62,7765	0,2588	12,4784	5,604	0,0283
0,4	48,8773	0,6374	5,5282	2,8501	0,0445
0,6	40,2801	1,3806	3,0383	1,8436	0,0526
0,8	30,2311	3,7472	1,5987	1,1844	0,0509
0,9	23,4326	8,6906	1,0083	0,8002	0,0447
0,925	20,2954	12,4741	0,8232	0,6805	0,0413
0,95	17,1592	19,8337	0,6474	0,5425	0,0375
0,975	12,2987	45,3826	0,4154	0,3705	0,0334

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**Table 11 — Values of the basic characteristics for  $\Omega = 180^\circ$  and  $B/D = 0,5$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	72,2939	0,0747	43,0117	22,4028	0,0213
0,4	58,1928	0,2002	17,2897	9,9614	0,0394
0,6	45,6971	0,49	8,2284	5,4518	0,0522
0,8	31,5756	1,7222	3,2498	2,5502	0,0573
0,9	22,246	5,1676	1,5666	1,3352	0,0547
0,925	19,7514	7,8436	1,2104	1,039	0,053
0,95	16,5935	13,852	0,862	0,7419	0,0508
0,975	10,7691	38,055	0,4601	0,412	0,0451

**Table 15 — Values of the basic characteristics for  $\Omega = 150^\circ$  and  $B/D = 1$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	64,1708	0,2022	15,9459	7,1228	0,0268
0,4	50,1904	0,5099	6,8759	3,51	0,0434
0,6	41,1351	1,1434	3,6318	2,1757	0,0526
0,8	30,2445	3,2967	1,7897	1,3189	0,0511
0,9	22,9634	8,0787	1,0677	0,8862	0,045
0,925	20,115	11,5986	0,8719	0,7488	0,0419
0,95	16,9465	18,7837	0,6741	0,5636	0,0383
0,975	12,1844	43,3026	0,4294	0,376	0,0339

**Table 12 — Values of the basic characteristics for  $\Omega = 180^\circ$  and  $B/D = 0,25$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	73,9364	0,019	169,0777	87,6215	0,011
0,4	59,6743	0,0537	64,0354	36,5135	0,0214
0,6	45,5631	0,1465	27,0145	16,9891	0,0295
0,8	30,5214	0,6054	8,8522	6,0472	0,0339
0,9	21,4482	2,1725	3,4821	2,7036	0,0334
0,925	19,5175	3,4617	2,543	2,0119	0,0332
0,95	14,9385	7,3485	1,4916	1,2603	0,0321
0,975	9,4617	23,4266	0,6837	0,5668	0,0299

**Table 16 — Values of the basic characteristics for  $\Omega = 150^\circ$  and  $B/D = 0,75$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	65,9611	0,1367	23,5537	10,4496	0,0238
0,4	51,9963	0,3561	9,7827	4,9274	0,04
0,6	42,1174	0,8372	4,8918	2,8877	0,05
0,8	30,6367	2,6068	2,211	1,6154	0,0497
0,9	22,6695	6,9438	1,2114	1,0008	0,0443
0,925	19,8534	10,1662	0,9704	0,8155	0,0415
0,95	16,6812	16,9409	0,7302	0,608	0,0382
0,975	11,9044	40,5953	0,4488	0,3809	0,0337



**Table 17** — Values of the basic characteristics for  $\Omega = 150^\circ$  and  $B/D = 0,5$ 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	67,982 1	0,070 6	45,488 2	20,028 9	0,018 4
0,4	54,289 6	0,189 9	18,209 7	9,021 1	0,032 3
0,6	43,007 8	0,477 5	8,429 1	4,915 2	0,041 2
0,8	30,304 7	1,692 7	3,295 1	2,378 5	0,043 1
0,9	22,185 9	5,033 5	1,601 8	1,293	0,040 2
0,925	19,66	7,583 4	1,246	1,022	0,038 5
0,95	16,378 1	13,255 2	0,894 6	0,738 3	0,036 1
0,975	11,467 3	34,970 3	0,501 2	0,424 5	0,031 7

**Table 21** — Values of the basic characteristics for  $\Omega = 120^\circ$  and  $B/D = 1$ 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	59,398 7	0,153	21,036 9	7,650 6	0,018 8
0,4	44,128 5	0,407 5	8,550 6	3,649 7	0,028 8
0,6	35,883 7	0,977 9	4,191 5	2,157 8	0,033 6
0,8	27,36	3,009 4	1,923 7	1,266 5	0,031 6
0,9	21,254 9	7,658 1	1,104 3	0,852 5	0,027
0,925	18,998 1	11,022 2	0,900 7	0,728 2	0,025 1
0,95	16,145 2	18,053 6	0,689 4	0,541 8	0,022 5
0,975	12,470 2	39,792 4	0,460 6	0,389 6	0,019 7

**Table 18** — Values of the basic characteristics for  $\Omega = 150^\circ\text{C}$  and  $B/D = 0,25$ 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	70,141 7	0,018 5	173,657 4	75,891 2	0,009 9
0,4	56,480 4	0,052 9	65,001 8	31,701 1	0,018 5
0,6	43,946 4	0,144 7	27,351	15,684 6	0,024 8
0,8	29,809 3	0,600 8	8,914 3	6,343 3	0,026 9
0,9	21,215 2	2,153 9	3,509	2,611 2	0,025 9
0,925	18,326 8	3,587 1	2,450 4	1,911 4	0,025 1
0,95	15,853 8	6,827 2	1,603 5	1,270 1	0,024 4
0,975	10,791 7	21,429 5	0,751	0,631 5	0,022 1

**Table 22** — Values of the basic characteristics for  $\Omega = 120^\circ$  and  $B/D = 0,75$ 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	61,304 5	0,110 2	29,196 2	10,540 9	0,017 5
0,4	45,817 9	0,301	11,530 2	4,858 3	0,027 7
0,6	37,124 9	0,747 1	5,437 2	2,756 5	0,032 8
0,8	27,997 8	2,440 1	2,333 6	1,518 5	0,031 8
0,9	21,183 6	6,656 1	1,245 4	0,956 1	0,027 3
0,925	18,901 5	9,760 2	0,996 9	0,766 5	0,025 5
0,95	15,968 8	16,405 7	0,744	0,590 5	0,022 9
0,975	12,355 1	37,152 8	0,484 9	0,401	0,020 2

**Table 19** — Values of the basic characteristics for  $\Omega = 120^\circ$  and  $B/D = 1,5$ 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	56,676 3	0,219 6	14,682 2	5,394 3	0,019 5
0,4	42,036 2	0,553 6	6,325 8	2,743 3	0,028 4
0,6	34,566 2	1,267 2	3,269 2	1,713 3	0,033 5
0,8	27,097 3	3,610 8	1,632 3	1,085 8	0,030 8
0,9	21,230 1	8,726 1	0,988 9	0,768	0,025 4
0,925	19,173 2	12,258 2	0,826 4	0,667 3	0,023 5
0,95	16,245 9	19,760 5	0,642	0,514 8	0,020 9
0,975	12,526 3	42,612 1	0,437 5	0,353 7	0,018 1

**Table 23** — Values of the basic characteristics for  $\Omega = 120^\circ$  and  $B/D = 0,5$ 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	63,707 2	0,061 1	52,602	18,817 3	0,014 4
0,4	48,359 7	0,171 3	20,155 6	8,330 5	0,023 8
0,6	39,012 5	0,444 6	9,021 4	4,469 2	0,029 5
0,8	27,961	1,641 3	3,377 6	2,166 4	0,029 7
0,9	20,901 3	4,956 1	1,614 8	1,227 2	0,026 3
0,925	18,945 4	7,410 6	1,265 9	0,962 4	0,025
0,95	15,685 6	13,250 3	0,887 8	0,691 3	0,022 7
0,975	11,904 8	31,950 5	0,548 1	0,436 5	0,019 9

**Table 20** — Values of the basic characteristics for  $\Omega = 120^\circ\text{C}$  and  $B/D = 1,25$ 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	58,210 3	0,184 8	17,438 2	6,371 7	0,019 1
0,4	42,953	0,486 9	7,176 7	3,091 1	0,028 7
0,6	35,068 9	1,144 9	3,602 3	1,873 2	0,033 8
0,8	27,206 7	3,366 5	1,738 2	1,151 4	0,031 3
0,9	21,216 3	8,307 8	1,030 4	0,798 4	0,026 3
0,925	19,068 1	11,786 9	0,852 6	0,691 1	0,024 3
0,95	16,196 2	19,095 2	0,659 4	0,530 5	0,022 3
0,975	12,497 1	41,177 5	0,448 8	0,375 1	0,018 9

**Table 24** — Values of the basic characteristics for  $\Omega = 120^\circ$  and  $B/D = 0,25$ 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	66,239 9	0,016 9	190,023 5	67,326 8	0,008 2
0,4	51,432	0,050 7	67,705 1	27,357	0,014 8
0,6	41,159 6	0,138 7	28,511 7	13,726 9	0,019
0,8	28,646 6	0,589 2	9,077 7	5,683 1	0,019 9
0,9	20,788 5	2,124 4	3,552 3	2,517 7	0,018 5
0,925	17,974 1	3,548 5	2,472 8	1,878 2	0,017 6
0,95	14,837 7	7,037 8	1,551 2	1,195 1	0,016 5
0,975	11,015 9	20,770 2	0,773 9	0,609 1	0,015 3



**Table 25 — Values of the basic characteristics for  $\Omega = 90^\circ$  and  $B/D = 1,5$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	53,3402	0,1176	27,355	7,6276	0,0114
0,4	37,1665	0,3301	10,5034	3,54	0,0159
0,6	28,9167	0,8642	4,6881	1,9758	0,0174
0,8	23,2037	2,8817	1,9746	1,1041	0,0151
0,9	18,8315	7,6366	1,089	0,7487	0,0125
0,925	17,1845	11,0261	0,8865	0,6235	0,0115
0,95	14,9265	18,2683	0,6731	0,5097	0,0105
0,975	11,5294	40,8914	0,4432	0,3541	0,0097

**Table 28 — Values of the basic characteristics for  $\Omega = 90^\circ$  and  $B/D = 0,75$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	56,9444	0,0724	44,3583	12,2068	0,0109
0,4	40,2697	0,2094	16,4973	5,4332	0,0163
0,6	30,87	0,5746	6,9886	2,8638	0,0185
0,8	24,1523	2,0933	2,6649	1,4568	0,0171
0,9	18,9534	6,0576	1,336	0,9064	0,0143
0,925	17,1651	9,0204	1,0531	0,7373	0,0132
0,95	14,8237	15,3757	0,7759	0,578	0,0117
0,975	11,44	36,0784	0,488	0,3878	0,0103

**Table 26 — Values of the basic characteristics for  $\Omega = 90^\circ$  and  $B/D = 1,25$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	54,1165	0,1069	30,0617	8,3605	0,0115
0,4	37,6101	0,3074	11,266	3,786	0,0161
0,6	29,1984	0,8008	5,05	2,1145	0,0178
0,8	23,3782	2,719	2,0844	1,1605	0,0158
0,9	18,857	7,3176	1,1304	0,7752	0,0131
0,925	17,2396	10,5982	0,9172	0,6451	0,0121
0,95	14,908	17,5885	0,6942	0,519	0,011
0,975	11,5117	39,9392	0,4513	0,3601	0,0099

**Table 29 — Values of the basic characteristics for  $\Omega = 90^\circ$  and  $B/D = 0,5$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	59,758	0,0436	73,56	20,0318	0,0096
0,4	42,7063	0,132	26,0987	8,4393	0,0151
0,6	32,766	0,3731	10,6866	4,2761	0,0176
0,8	24,8677	1,4685	3,7338	2,0008	0,0168
0,9	19,1302	4,6261	1,7054	1,1418	0,0143
0,925	17,1373	7,1405	1,2942	0,8704	0,0132
0,95	14,7154	12,6882	0,9136	0,6752	0,0118
0,975	11,2711	31,5255	0,5438	0,4308	0,0103

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**Table 27 — Values of the basic characteristics for  $\Omega = 90^\circ$  and  $B/D = 1$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	55,8145	0,0893	35,9792	9,9463	0,0112
0,4	38,6932	0,266	13,0103	4,335	0,0163
0,6	29,8006	0,7105	5,6762	2,3567	0,0183
0,8	25,6536	2,4774	2,274	1,2576	0,0165
0,9	19,043	6,803	1,2062	0,8233	0,0138
0,925	17,2021	10,0115	0,9626	0,6735	0,0126
0,95	14,9196	16,8158	0,7206	0,5377	0,0115
0,975	11,4801	38,4785	0,4645	0,3699	0,0103

**Table 30 — Values of the basic characteristics for  $\Omega = 90^\circ$  and  $B/D = 0,25$** 

$\varepsilon$	$\beta$	$S_o$	$f'/\psi$	$f/\psi$	$Q_3^*$
0,2	62,8374	0,0137	234,8592	63,2038	0,0061
0,4	46,1719	0,0435	79,0197	24,8942	0,0103
0,6	35,8747	0,1276	30,9565	11,9186	0,0129
0,8	26,2754	0,5626	9,484	4,9014	0,013
0,9	19,4224	2,0827	3,6103	2,286	0,0114
0,925	17,2907	3,434	2,5451	1,6958	0,0108
0,95	14,5522	6,8003	1,5989	1,1093	0,0099
0,975	10,663	20,2802	0,7873	0,5875	0,0087

#### 4 Graphs of basic bearing characteristics

Figures 1 to 50 graphically represent the functions  $\beta$ ,  $S_o$ ,  $f'/\psi$ ,  $f/\psi$  and  $Q_3^*$ .

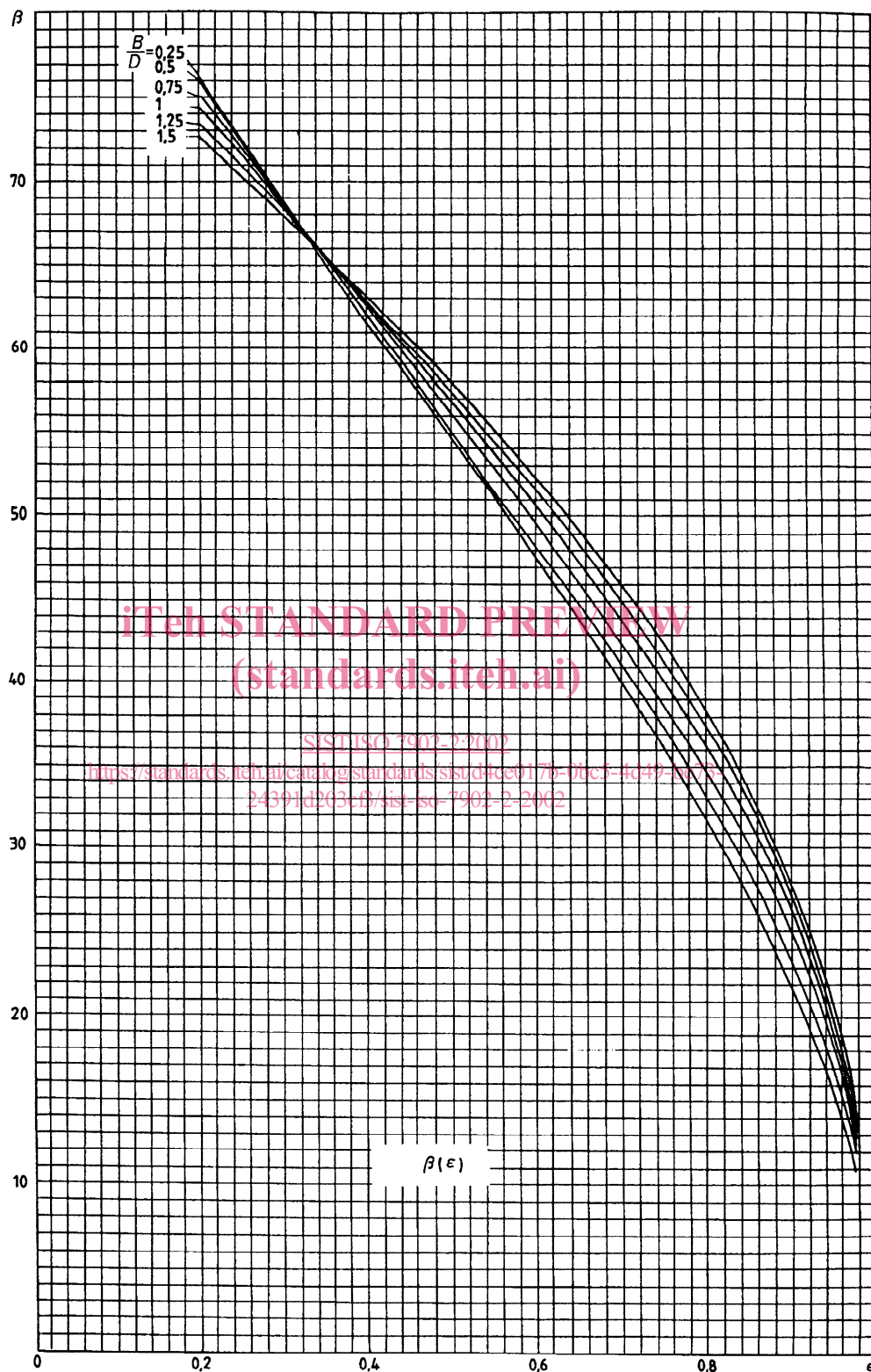


Figure 1 — Attitude angle  $\beta$  as a function of relative eccentricity  $\epsilon$  for  $\Omega = 360^\circ$



Figure 2 — Attitude angle  $\beta$  as a function of relative eccentricity  $\epsilon$  for  $\Omega = 180^\circ$

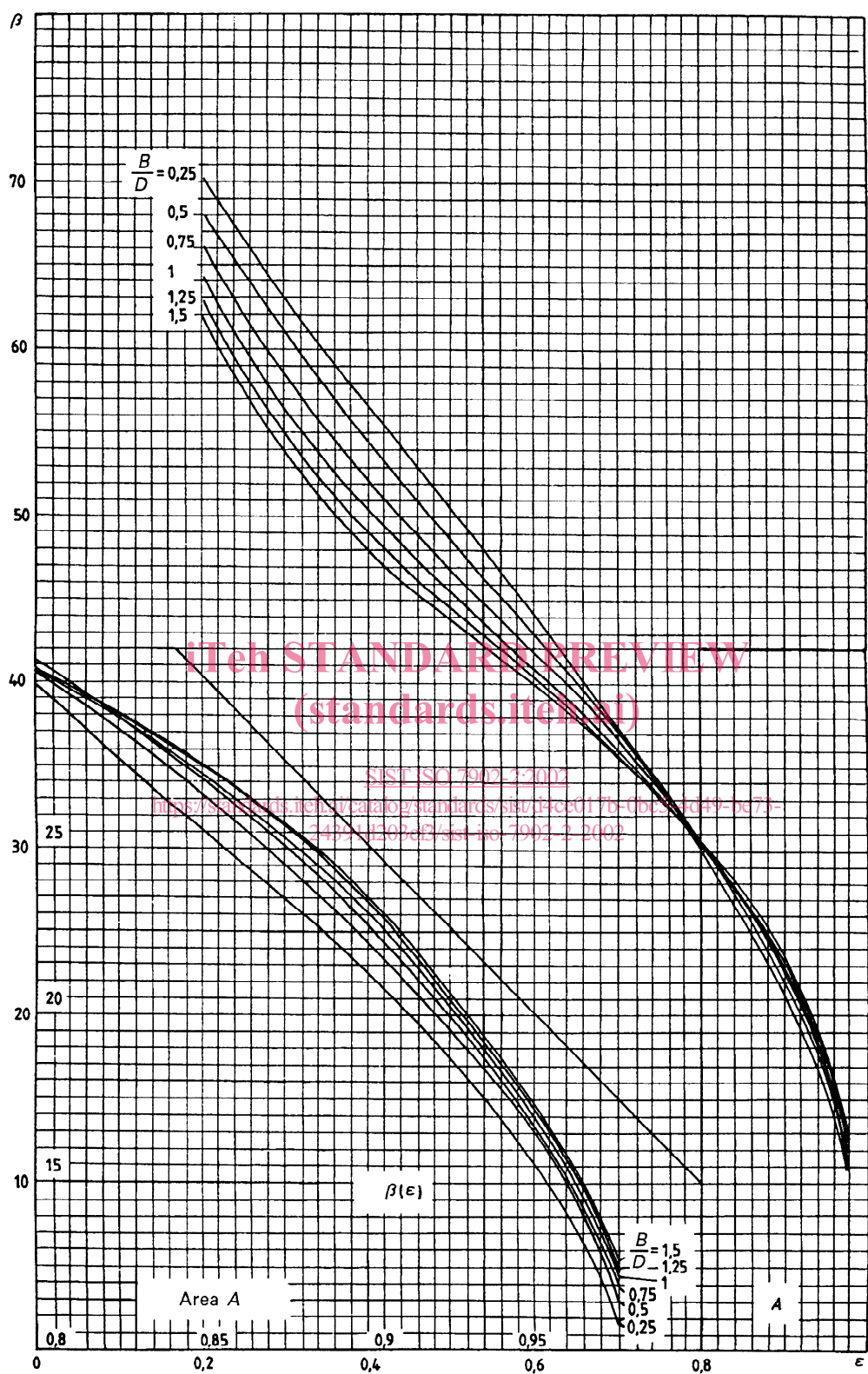


Figure 3 — Attitude angle  $\beta$  as a function of relative eccentricity  $\epsilon$  for  $\Omega = 150^\circ$



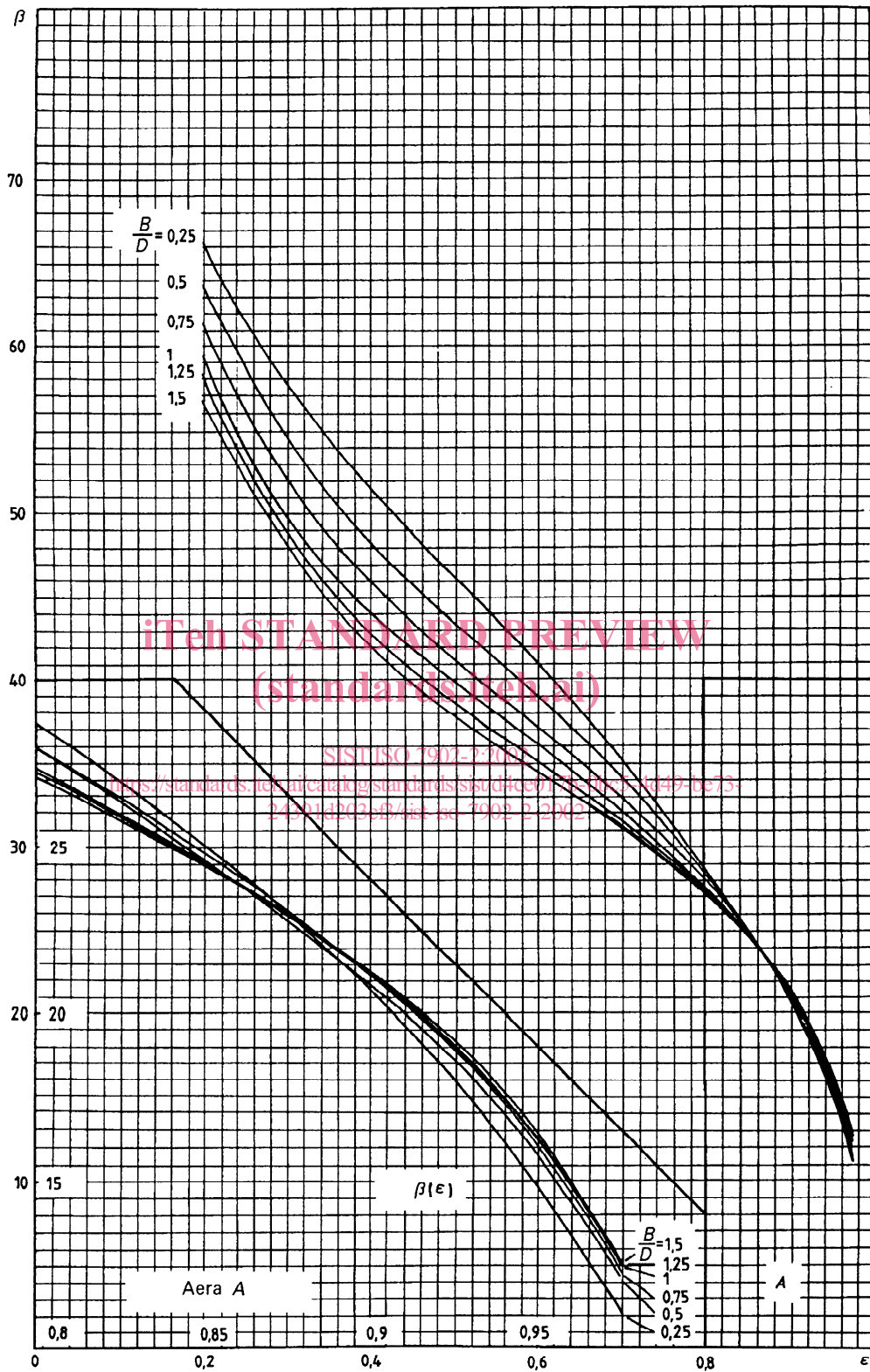


Figure 4 — Attitude angle  $\beta$  as a function of relative eccentricity  $\epsilon$  for  $\Omega = 120^\circ$

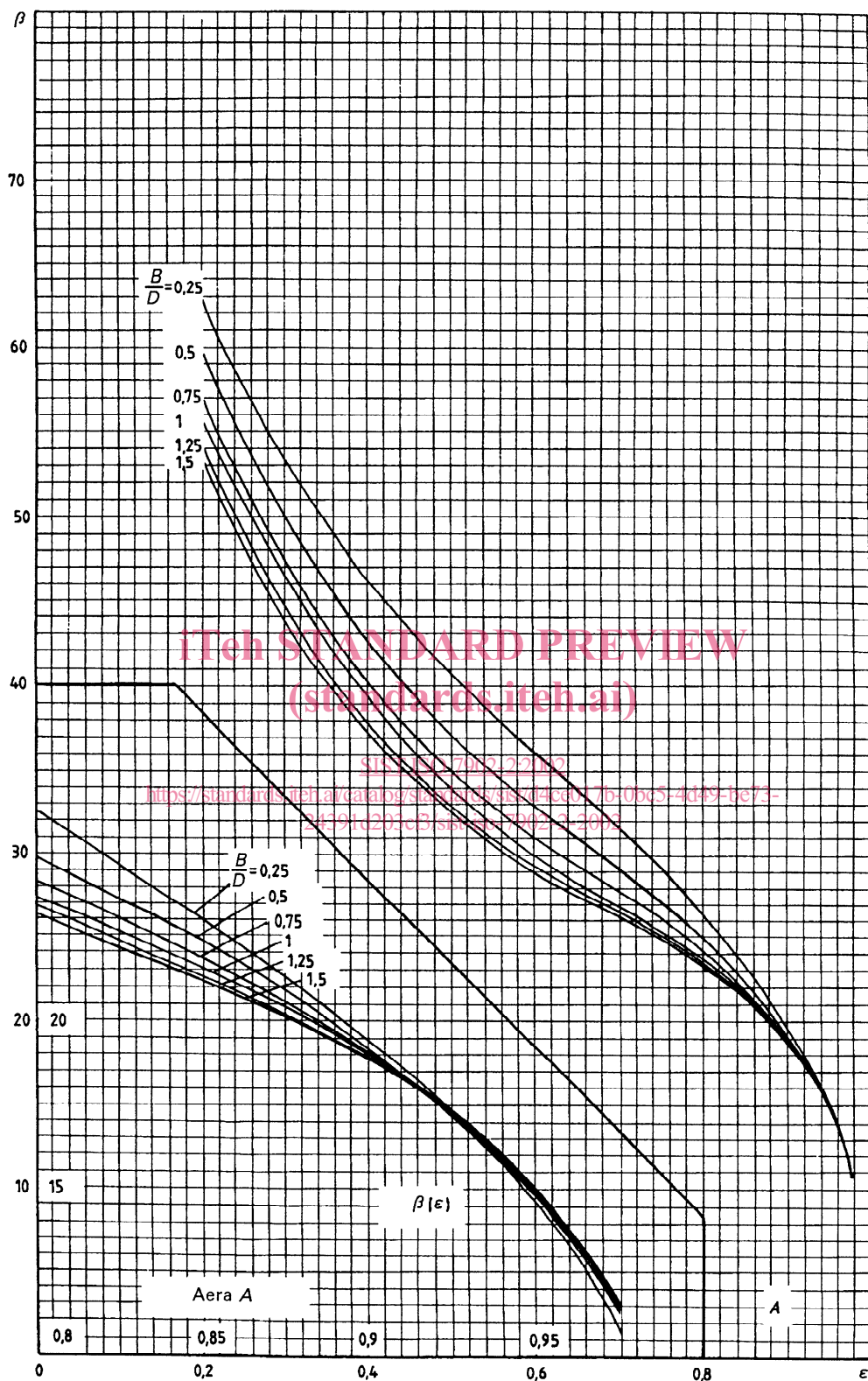


Figure 5 — Attitude angle  $\beta$  as a function of relative eccentricity  $\epsilon$  for  $\Omega = 90^\circ$

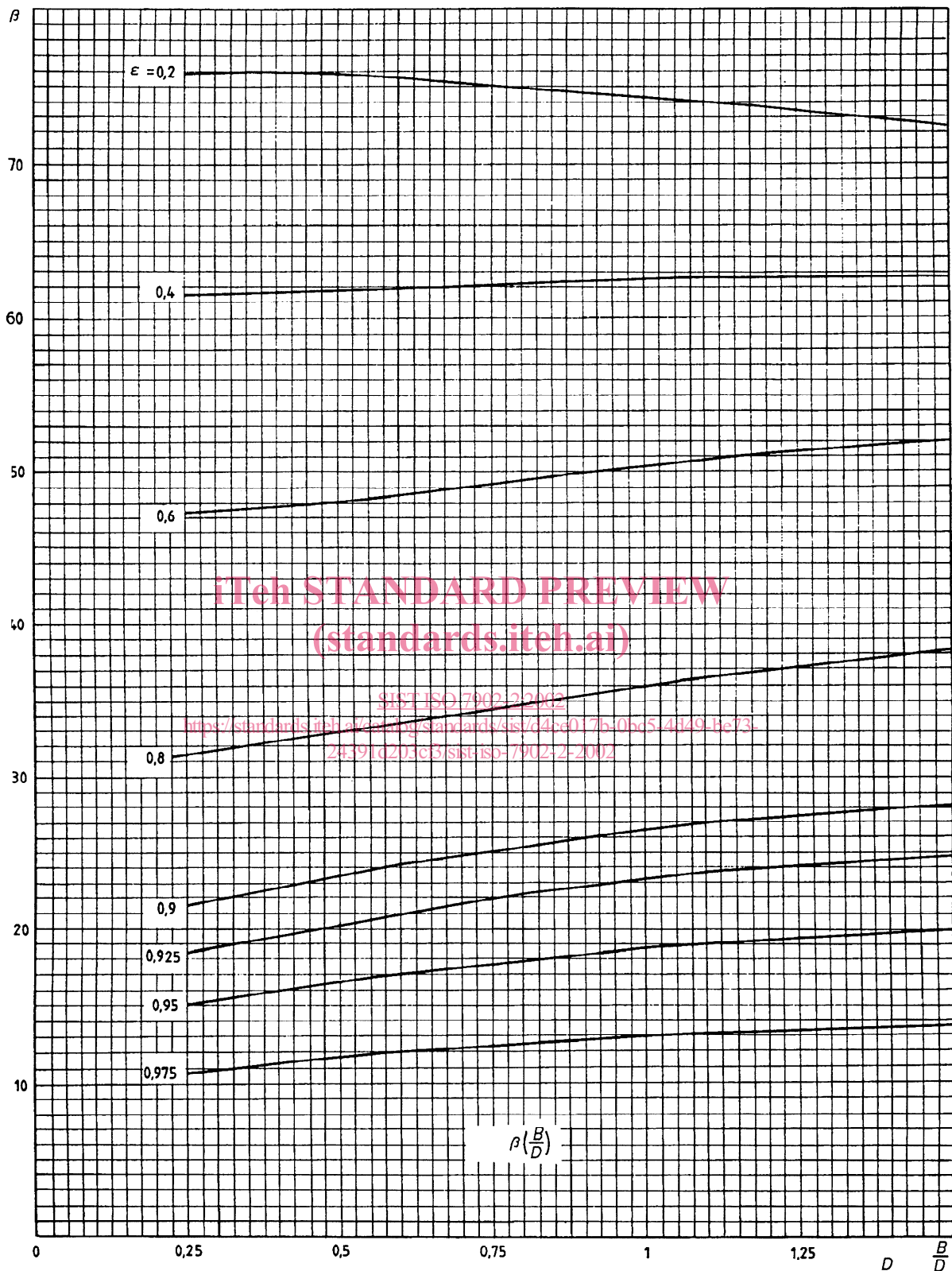


Figure 6 — Attitude angle  $\beta$  as a function of relative bearing width  $B/D$  for  $\Omega = 360^\circ$