INTERNATIONAL STANDARD

ISO
8122

First edition
1988-04-01

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Textile machinery — Knitting machines — Number of needles for circular knitting machines of large nominal diameter

Matériel pour l'industrie textile — Machines à tricoter — Nombre d'aiguilles pour les machines à tricoter circulaires de grand diamètre nominal

Reference number
ISO 8122 : 1988 (E)

Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8122 was prepared by Technical Committee ISO/TC 72, *Textile machinery and allied machinery and accessories.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Printed in Switzerland

Textile machinery — Knitting machines — Number of needles for circular knitting machines of large nominal diameter

1 Scope and field of application

This International Standard specifies the usual number of needles for single face, double face and "links-links" circular knitting machines of large nominal diameter in terms of the needle pitch or gauge E and the machine nominal diameter; it may be used as a basis for the comparison of fabrics knitted on these machines.

NOTE — The classification and vocabulary of knitting machines are laid down in ISO 7839.

2 References

ISO 7839, *Textile machinery and accessories — Knitting machines — Classification and vocabulary.*

ISO 8117, *Textile machinery — Knitting machines — Nominal diameters of circular machines.*

ISO 8188, *Textile machinery and accessories — Pitches of knitting machine needles.*

3 Number of needles

3.1 General

The numerical designations of the nominal diameters of circular knitting machines and the needle pitches are given in ISO 8117 and ISO 8188.

To determine the usual number, N_u (rounded number), of needles for circular knitting machines of large nominal diameter from the theoretical number, N_t, of needles, take as the divisor

a) 12, for machines with nominal diameters less than or equal to 508 mm, and

b) 24, for machines with nominal diameters greater than 508 mm.

The deviation from the theoretical number of needles shall not exceed $^{+3}_{-9}$ for case a) and $^{+6}_{-18}$ for case b).

NOTE — The usual number (rounded) of needles is therefore a multiple of 12 or 24 which occurs in the fixed tolerance interval for the theoretical number of needles, i.e. $^{+3}_{-9}$ or $^{+6}_{-18}$.

3.2 Calculation

The theoretical number, N_t, of needles is obtained using the following formula:

$$N_t = d_c \pi E$$

where

N_t is the theoretical number of needles;

π = 3,141 592 7;

d_c is the designation for the nominal diameter of the knitting machine;

E is the gauge.

The usual number, N_u, of needles, as given in the table, is the number rounded according to the requirements of 3.1.

Example:

The theoretical number of needles for a knitting machine with a numerical designation d_c = 18 and a gauge E = 24 is

$$N_t = 18 \times 3{,}141\,592\,7 \times 24 = 1\,357{,}168$$

The usual number of needles is therefore in the range of 1 348,168 to 1 360,168 (i.e. 1 357,168 $^{+3}_{-9}$) and is 1 356 (using a divisor of 12) in this case.

Table

Needle pitch t mm	Gauge E	Large nominal diameter, mm (designation, d_c) — Usual number of needles, N_u																											
		178 (7)	190 (7,5)	203 (8)	229 (9)	254 (10)	279 (11)	305 (12)	330 (13)	356 (14)	381 (15)	406 (16)	432 (17)	457 (18)	483 (19)	508 (20)	533 (21)	559 (22)	584 (23)	610 (24)	660 (26)	711 (28)	762 (30)	787 (31)	813 (32)	838 (33)	864 (34)	914 (36)	965 (38)	1 016 (40)
0,508	50	1 092	1 176	1 260	1 416	1 572	1 728	1 884	2 040	2 196	2 352	2 508	2 664	2 820	2 988	3 144	3 288	3 456	3 600	3 768	4 080	4 392	4 704	4 872	5 016	5 184	5 328	5 640	5 952	6 288
0,529	48	1 056	1 128	1 200	1 356	1 500	1 656	1 812	1 956	2 112	2 256	2 412	2 556	2 712	2 868	3 012	3 168	3 312	3 456	3 624	3 912	4 224	4 512	4 680	4 824	4 968	5 112	5 424	5 736	6 024
0,552	46	1 008	1 080	1 152	1 296	1 440	1 584	1 728	1 872	2 016	2 160	2 304	2 460	2 604	2 748	2 892	3 024	3 168	3 312	3 456	3 744	4 032	4 320	4 464	4 608	4 752	4 896	5 208	5 496	5 784
0,577	44	960	1 032	1 104	1 236	1 380	1 524	1 656	1 800	1 932	2 076	2 208	2 352	2 484	2 628	2 760	2 904	3 024	3 168	3 312	3 600	3 864	4 152	4 272	4 416	4 560	4 704	4 968	5 256	5 520
0,605	42	924	984	1 056	1 188	1 320	1 452	1 584	1 716	1 848	1 980	2 112	2 244	2 376	2 508	2 640	2 760	2 904	3 024	3 168	3 432	3 696	3 960	4 080	4 224	4 344	4 488	4 752	5 016	5 280
0,635	40	876	936	1 008	1 128	1 260	1 380	1 500	1 632	1 752	1 884	2 004	2 136	2 256	2 388	2 508	2 640	2 760	2 880	3 000	3 264	3 504	3 768	3 888	4 008	4 152	4 272	4 512	4 776	5 016
0,668	38	828	888	948	1 068	1 188	1 308	1 428	1 548	1 668	1 788	1 908	2 028	2 148	2 268	2 388	2 496	2 616	2 736	2 856	3 096	3 336	3 576	3 696	3 816	3 936	4 056	4 296	4 536	4 776
0,706	36	792	840	900	1 020	1 128	1 236	1 356	1 464	1 584	1 692	1 812	1 920	2 028	2 148	2 256	2 376	2 472	2 592	2 712	2 928	3 168	3 384	3 504	3 624	3 720	3 840	4 056	4 296	4 512
0,747	34	744	804	852	960	1 068	1 176	1 284	1 392	1 488	1 596	1 704	1 812	1 920	2 028	2 136	2 232	2 352	2 448	2 568	2 760	2 976	3 192	3 312	3 408	3 528	3 624	3 840	4 056	4 272
0,794	32	696	756	804	900	1 008	1 104	1 200	1 308	1 404	1 500	1 608	1 704	1 812	1 908	2 004	2 112	2 208	2 304	2 400	2 616	2 808	3 000	3 120	3 216	3 312	3 408	3 624	3 816	4 008
0,847	30	660	708	756	840	936	1 032	1 128	1 224	1 320	1 416	1 500	1 596	1 692	1 788	1 884	1 968	2 064	2 160	2 256	2 448	2 640	2 832	2 928	3 000	3 096	3 192	3 384	3 576	3 768
0,907	28	612	660	696	792	876	960	1 056	1 140	1 224	1 320	1 404	1 488	1 584	1 668	1 752	1 848	1 920	2 016	2 112	2 280	2 448	2 640	2 712	2 808	2 904	2 976	3 168	3 336	3 504
0,977	26	564	612	648	732	816	900	972	1 056	1 140	1 224	1 308	1 392	1 464	1 548	1 632	1 704	1 800	1 872	1 944	2 112	2 280	2 448	2 520	2 616	2 688	2 760	2 928	3 096	3 264
1,058	24	528	564	600	672	756	828	900	972	1 056	1 128	1 200	1 284	1 356	1 428	1 500	1 584	1 656	1 728	1 800	1 944	2 112	2 256	2 328	2 400	2 472	2 568	2 712	2 856	3 000
1,154	22	480	516	552	624	684	756	828	900	960	1 032	1 104	1 176	1 236	1 308	1 380	1 440	1 512	1 584	1 656	1 800	1 920	2 064	2 136	2 208	2 280	2 352	2 472	2 616	2 760
1,210	21	456	492	528	588	660	720	792	852	924	984	1 056	1 116	1 188	1 248	1 320	1 368	1 440	1 512	1 584	1 704	1 848	1 968	2 040	2 112	2 160	2 232	2 376	2 496	2 640
1,270	20	432	468	504	564	624	684	756	816	876	936	1 008	1 068	1 128	1 188	1 260	1 320	1 368	1 440	1 512	1 632	1 752	1 872	1 944	2 016	2 064	2 136	2 256	2 376	2 496
1,337	19	420	444	480	540	600	660	708	768	828	888	948	1 008	1 068	1 128	1 188	1 248	1 296	1 368	1 416	1 536	1 656	1 776	1 848	1 896	1 968	2 016	2 136	2 256	2 376
1,411	18	396	420	444	504	564	624	672	732	792	840	900	960	1 020	1 068	1 128	1 176	1 248	1 296	1 344	1 464	1 584	1 680	1 752	1 800	1 872	1 920	2 040	2 136	2 256
1,588	16	348	372	396	444	504	552	600	648	696	756	804	852	900	948	1 008	1 056	1 104	1 152	1 200	1 296	1 392	1 512	1 560	1 608	1 656	1 704	1 800	1 896	2 016
1,693	15	324	348	372	420	468	516	564	612	660	708	756	804	840	888	936	984	1 032	1 080	1 128	1 224	1 320	1 416	1 464	1 512	1 560	1 608	1 680	1 776	1 872
1,814	14	300	324	348	396	432	480	528	564	612	660	696	744	792	828	876	912	960	1 008	1 056	1 128	1 224	1 320	1 368	1 392	1 440	1 488	1 584	1 656	1 752
2,117	12	264	276	300	336	372	408	444	492	528	564	600	636	672	708	756	792	816	864	888	984	1 056	1 128	1 152	1 200	1 248	1 272	1 344	1 416	1 512
2,309	11	240	252	276	312	348	372	408	444	480	516	552	588	624	660	684	720	744	792	816	888	960	1 032	1 056	1 104	1 128	1 176	1 248	1 296	1 368
2,540	10	216	228	252	276	312	348	372	408	432	468	504	528	564	600	624	648	696	720	744	816	864	936	960	1 008	1 032	1 056	1 128	1 200	1 248
2,822	9	192	204	228	252	276	312	336	360	396	420	444	480	504	540	564	600	624	648	672	720	792	840	864	888	936	960	1 008	1 080	1 128
3,175	8	168	180	204	228	252	276	300	324	348	372	396	420	444	480	504	528	552	576	600	648	696	744	768	792	816	840	888	960	1 008
3,629	7	156	168	168	192	216	240	264	288	300	324	348	372	396	420	432	456	480	504	528	576	600	648	672	696	720	744	792	840	864
4,233	6	132	144	144	168	180	204	228	240	264	276	300	312	336	360	372	384	408	432	456	480	528	552	576	600	624	624	672	720	744
5,080	5	108	120	120	144	156	168	180	204	216	228	252	264	276	300	312	336	336	360	360	408	432	456	480	504	504	528	552	600	624
5,644	4,5	96	108	108	120	144	156	168	180	192	204	228	240	252	264	276	288	312	312	336	360	384	408	432	456	456	480	504	528	552
6,350	4	84	96	96	108	120	132	144	156	168	180	204	216	228	240	252	264	264	288	288	312	336	360	384	408	408	432	456	480	504
7,257	3,5	72	84	84	96	108	120	132	144	156	168	168	180	192	204	216	216	240	240	264	288	312	336	336	336	360	360	384	408	432
8,467	3	60	72	72	84	96	96	108	120	132	144	144	156	168	180	180	192	192	216	216	240	264	288	288	288	312	312	336	360	360
10,160	2,5	48	60	60	72	72	84	96	96	108	120	120	132	144	144	156	168	168	168	192	192	216	240	240	240	264	264	288	288	312
12,700	2	36	48	48	60	60	72	72	84	84	96	96	108	108	120	120	120	144	144	144	168	168	192	192	192	192	216	216	240	240

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UDC 677.055.5

Descriptors : textile machinery, knitting machines, knitting needles, numbers.

Price based on 2 pages