

Orange

Small, Strong & Global



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Orange



Small, Strong & Global

Since the establishment in 1964, we have specialized in sewing machine needles under the founding slogan of “No Depression for Excellent products”. As a result, we have become one of the world-leading manufacturers of sewing machine needles, exporting our products with the “Orange” brand to more than 60 countries. We owe our success to the continuous patronage and loyalty of our customers.

These days customer needs become increasingly diversified. We strive to realize the motto-“Small, Strong, and Global” through expansion of R&D activities, up-graded automation of equipments and facilities, and optimal services for customer satisfaction.

Going forth, we promise to continue on our journey of excellence onto the 21st century. Again, we would like to extend our sincere gratitude to our customers for their support.

May 20, 2024

TAEWON NEEDLE Ltd.



Hae Won Chung
President & C.E.O.

STRICT QUALITY CONTROL



Our quality control activities are consistently carried out from the stage of designing and raw material purchase to the end of the service life of our products. The chemical composition, mechanical properties, appearance and dimension of raw materials, and various characteristics of needle quality, including the appearance, size, shape, plating conditions, and heat treatment of the finished products, are strictly controlled and precisely tested. We are always inspecting every piece of our needles to get rid of any defective products. The reliability of our quality guaranty system has been well-known to our customers.



..... **ADVANCED TECHNOLOGY**

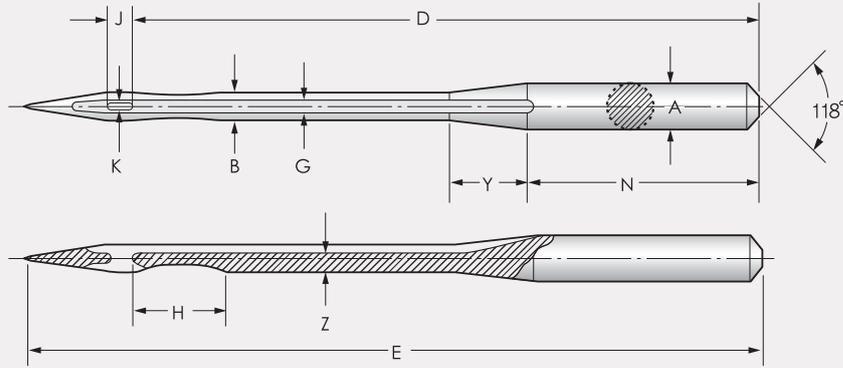
On the basis of our long-term accumulated technologies, we have been carrying out continuous R & D activities to produce high quality needles. Our R & D activities include the improvement of our processing methods and needle shapes for better performance, the automatization of our production facilities for uniform needle characteristics, and the continuous development of our new needles to meet the diversified needlework patterns. Our R & D activities will be even more expansive than now, since they are a must in order to satisfy our customers' needs for needle quality.



NEEDLE STRUCTURE



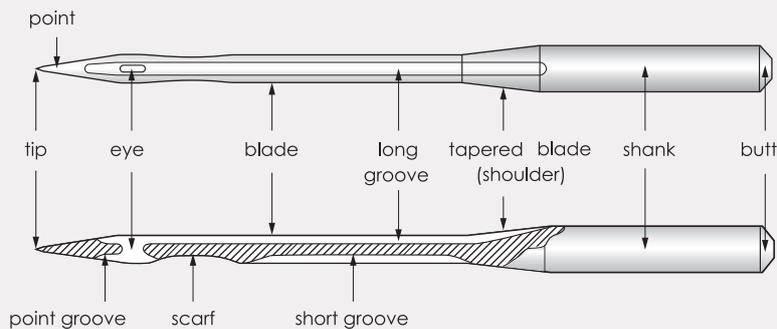
SYMBOL OF MAIN MEASUREMENT



EXPLANATION FOR SYMBOL

SYMBOL	DESCRIPTION
A	diameter of shank
E	overall length
D	distance from beginning of eye to top of shank
N	length of shank
Y	length of tapered blade
B	diameter of blade
J	length of eye
K	width of eye
H	length of scarf
Z	depth of groove
G	width of groove

DESIGNATION OF VARIOUS PARTS





SYSTEM

We have arranged a variety of needle systems in alphabetical and numerical order are shown. You will find a lot of systems in this catalog, which are comparatively popular needles at present in the field of the sewing industry.

NEEDLE FIGURE

The drawings in this catalog show the actual size outline of the needles. You will realize all the particulars such as the supplementary shoulder, scarf, flattened shank, shape of short groove, etc...

POINT SHAPE

The point symbols represent the shape of the needle point by promise, and the marked symbol indicates the standard shape of the system. Besides, the standard shape, various Ball Points and Leather Points can be processed according to the special uses. Also, the arrow sign in the drawings indicates the direction of the threading.

SECTION OF BLADE (X-X')

You will easily realize the shape of the blade by the number of the grooves and the position of the grooves in the cross-sectional views.

DIAMETER OF SHANK (A^φ)

The diameter of the shank is a basically important factor when selecting the needle and should be suitable to the needle bar of the sewing machine. Through this column you will recognize the diameter of the shank and the direction of flattening or notch on the shank.

DISTANCE FROM BUTT TO TOP OF EYE (D)

The distance from the butt to the top of the eye has a direct relation to the timing of the hook or the looper as well as the stroke of the needle bar. Please refer to this column when selecting the needle.

LENGTH OF SHANK (N)

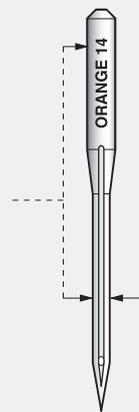
You should select the exact length of the needle shank according to the mechanical condition of the sewing machine or the thickness of the sewing materials.

NEEDLE SIZE

The needle size indicates the diameter of the needle blade, and its marking methods are different according to each needle's manufacturer. Our company, together with the Japanese manufacturer and Singer, mark them with a series of number while the German manufacturers mark them with a metric size (Nm). In this catalog, we have marked the suppleable needle sizes with our codes on the upper line and the corresponding Nm style or other numbering system on the bottom line, so that you can easily recognize the mutual connection.

《 example 》

OUR CODE	Nm STYLE	DIAMETER OF BLADE
14	90	0.90 mm
18	110	1.10 mm



EQUIVALENT SYSTEM

Notwithstanding the same shape and measurement of a needle, its designation may be different according to the needle's manufacturer. To avoid confusion, the other manufacturers' needle systems have been recorded in this catalog as well. Upon request from our customers, we sometimes correspond other manufacturers' systems on the packing envelope, box, etc...

《 example 》

DB X 1, 287WH, 1738, 16 X 231, SY2254, SY2270

TECHNICAL TERMS

For the purpose of aiding the selection and use of a needle we describe various technical terms in relation to sewing and the sewing machine needle.



SEWING MACHINE NEEDLE



SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A [∅]	D	N
AIX 1					22.00	9.50
BBX 155					33.70	10.50
BKX 705KH					33.90	14.50
BLX 1					33.80	13.50
BQX 1					37.20	15.00
CPX 1					34.50	18.00
DAX 1					29.60	14.50
DBX 1					33.80	16.00
					33.80	12.50 ~ 10.50
DBX 1KN					33.80	16.00
DBX 1MR					33.90	14.00
DBX 95					33.80	13.50
DBX A20					33.80	12.50 ~ 11.50
DBX F2					33.80	16.00
					33.80	12.50 ~ 10.50
DBX N20					33.80	12.50
DCX 1					28.60	10.00



SIZE														EQUIVALENT SYSTEM	SYSTEM		
5 21	6 20	7 18	8 16	9 14	11 12	12 11	292 Bonis No.							176 X 1: 262A	AIX 1		
						16 100	18 110	19 120						21 130	B-155	BBX 155	
						12 80	14 90	16 18 100 110							705KH	BKX 705KH	
						14 90							1738KK FFG	BLX 1			
10 11 12 70 75 80			14 90		16 18 100 110							108 X 1	BQX 1				
						14 90	16 100							135 X 9: SY1902	CPX 1		
9 10 11 65 70 75		12 13 14 80 85 90		16 18 19 100 110 120							88 X 1: 1128	DAX 1					
7 55	8 60	9 65	10 70	11 75	12 80	13 85	14 90	16 18 100 110							16 X 231: 16 X 257: 1738: SY2254	DBX 1	
						19 20 21 22 120 125 130 140		23 24 25 160 180 200									
8 60	9 65	10 70	11 75	12 80	14 90							1738 SAN10	DBX 1KN				
						14 3.0	16 18 3.5 4.0							1738 MR	DBX 1MR		
						19 20 21 22 120 125 130 140		23 160								16 X 95: 287WH: 1738A	DBX 95
						20 21 125 130							1738AK	DBX A20			
9 65		11 12 75 80		14 90	16 18 100 110							16 X 230RTW: 1738LR	DBX F2				
						19 20 21 22 120 125 130 140		23 24 25 160 180 200									
9 65		11 75		14 90							1738KK	DBX N20					
7 55	8 60	9 65	10 70	11 75	12 80	13 85	14 90	16 18 19 100 110 120	20 21 22 125 130 140	23 160		81 X 1: 621: MY1023A	DCX 1				



SEWING MACHINE NEEDLE

SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A ϕ	D	N
DCX 1F				$\phi 2.02$	28.60	10.00
DCX 5				$\phi 2.02$	28.60	10.50
DCX 27				$\phi 2.02$	28.60	10.00
DCX 27KN				$\phi 2.02$	28.60	10.00
DCX C87				$\phi 2.02$	28.60	10.00
DCX N17				$\phi 2.02$	28.60	13.00
DDX 1				$\phi 2.29$	52.20	20.00
				$\phi 2.49$	52.20	18.00
DDX 2LL				$\phi 2.29$	52.20	20.00
				$\phi 2.49$	52.20	18.00
DDX 2LR				$\phi 2.29$	52.20	20.00
				$\phi 2.49$	52.20	18.00
DHX 1				$\phi 2.02$	28.20	11.50
DIX 1				$\phi 1.98$	39.20 ~38.60	13.00
DIX 3				$\phi 1.98$	39.00	13.00
DIX 4LL				$\phi 1.98$	39.20	13.00
DIX E36				$\phi 1.98$	43.00	13.00



SIZE														EQUIVALENT SYSTEM	SYSTEM						
											11 75	14 90		DCX 1F							
											23 160		81 X 5	DCX 5							
7 55	8 60	9 65	10 70	11 75	12 80	13 85	14 90	16 100	18 110	19 120	20 125	21 130	22 140	23 160	24 180	B-27: 81 X 27: MY1023: 1886	DCX 27				
											8 60	9 65	10 70	11 75	12 80	14 90	B-27 SAN10	DCX 27KN			
											11 75	14 90		DCX C87							
											9 65						81 X 1: 621: MY1023A	DCX N17			
											20 125		21 130	22 140	23 160	24 180	214 X 1: 328	DDX 1			
											25 200			26 230	27 250						
											23 160		24 180				214 X 2TW: 328LL	DDX 2LL			
											25 200			26 230	27 250						
											23 160		24 180				214 X 2RTW: 328LR	DDX 2LR			
											25 200			26 230	27 250						
9 65	11 75	14 90	16 100	18 110												24 X 1: 1881	DHX 1				
											21 130	23 160	25 200	29 X 1	DIX 1						
											16 100	18 110	19 120	20 125	21 130	22 140	23 160	24 180	25 200	29 X 3: 332	DIX 3
											19 120	20 125	21 130	22 140				29 X 4(TW): 332LL	DIX 4LL		
											25 200							DIX E36			



SEWING MACHINE NEEDLE

SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A ^ø	D	N
DK 2500					55.00	24.00
DLX 1					33.90	16.00
DMX 1					28.60	10.00
DMX 13					28.60	8.00
DNX 1					42.40	14.50 ~ 13.00
DOX 5					31.30	10.00
DOX 558					33.90	11.00
DPX 1					31.90	12.50 ~ 11.50
DPX 5					33.90	12.50 ~ 11.50
DPX 5KN					33.90	12.50
DPX 5MR					33.90	13.50 ~ 11.50
DPX 16D					39.00	13.50
DPX 16DIA					39.00	13.50
DPX 16P					39.00	13.50
DPX 17					39.00	16.00 ~ 13.00
DPX 17MR					39.00	14.50 ~ 13.00
DPX 17SSN					38.90	16.00 ~ 13.00



SIZE	EQUIVALENT SYSTEM	SYSTEM
25 26 200 230	SG X 7713 SY7713	DK 2500
11 12 14 16 18 75 80 90 100 110	71 X 1	DLX 1
11 12 14 16 75 80 90 100	82 X 1	DMX 1
9 11 12 13 14 16 18 19 20 21 65 75 80 85 90 100 110 120 125 130	82 X 13: 1886KK	DMX 13
21 130	92 X 1: UY143GS: MY1013: 1286	DNX 1
11 14 16 18 19 20 21 75 90 100 110 120 125 130	142 X 5: 1778	DOX 5
11 12 14 16 18 19 21 75 80 90 100 110 120 130	558	DOX 558
9 10 11 12 14 16 18 19 21 22 65 70 75 80 90 100 110 120 130 140	61B: 135 X 1: 354	DPX 1
7 8 9 10 11 12 13 14 16 18 19 20 21 22 23 24 25 55 60 65 70 75 80 85 90 100 110 120 125 130 140 160 180 200	134(R): 135 X 5: 135 X 7: SY1955	DPX 5
8 9 10 11 12 60 65 70 75 80	134 SAN10	DPX 5KN
14 16 18 19 21 3.0 3.5 4.0 4.5 5.0	134 MR	DPX 5MR
16 18 19 20 21 22 23 100 110 120 125 130 140 160	135 X 16TRI	DPX 16D
14 16 18 19 20 21 22 23 24 90 100 110 120 125 130 140 160 180	135 X 16DIA	DPX 16DIA
14 16 18 19 20 21 22 23 24 90 100 110 120 125 130 140 160 180	135 X 16(NW)	DPX 16P
9 10 11 12 13 14 16 18 19 20 21 22 23 24 25 65 70 75 80 85 90 100 110 120 125 130 140 160 180 200	135 X 17: 2167	DPX 17
16 18 19 21 23 3.5 4.0 4.5 5.0 6.0	135 X 17 MR	DPX 17MR
20 21 22 23 125 130 140 160	135 X 17 SAN5	DPX 17SSN



SEWING MACHINE NEEDLE



SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A [∅]	D	N
DPX 35D					38.20	13.50
DPX 35K					38.00	15.00
DPX 35LR					38.10	13.50
DPX 35PCL					38.10	13.50
DPX 35R					38.20	13.50
DPX 35S					38.20	13.50
DPX 39					33.90	18.00
DPX 85					38.10	13.50
DRX 2					53.45	16.00
DVX 1					39.00	13.50
DVX 43					39.00	13.50
DVX 57					38.70	13.00
DVX 57P					38.70	13.00
DVX 59					41.50	13.00
DVX 63					39.00	13.50
DVX 123QCL					39.00	13.50
DVX G9					39.00	13.50



SIZE													EQUIVALENT SYSTEM	SYSTEM			
18 19 110 120													134-35TRI: 2134-35TRI	DPX 35D			
14 16 18 90 100 110													134-35K: 2134-35K	DPX 35K			
12	14	16	18	19	20	21	22	23	24	25			134-35LR: 2134-35LR	DPX 35LR			
80	90	100	110	120	125	130	140	160	180	200							
16 18 19 100 110 120													134-35PCL: 2134-35PCL	DPX 35PCL			
12	14	16	18	19	20	21	22	22½	23				134-35(R): 2134-35R	DPX 35R			
80	90	100	110	120	125	130	140	150	160								
14 90													134-35S: 2134-35S	DPX 35S			
14 16 90 100													135 X 39	DPX 39			
16 100													2134 - 85	DPX 85			
25 26 27 28 200 230 250 280													124 X 2	DRX 2			
8	9	10	11	12	13	14	16	18	20	21	22			62 X 21: UY121GS: 759: 1628	DVX 1		
60	65	70	75	80	85	90	100	110	125	130	140						
8	9	10	11	12	13	14	16	18	19	20	21	22	23			62 X 43	DVX 43
60	65	70	75	80	85	90	100	110	120	125	130	140	160				
11 12 14 75 80 90													62 X 57: 5640	DVX 57			
16 100													62 X 57NW: 5640NW	DVX 57P			
18 20 21 22 110 125 130 140													62 X 59	DVX 59			
23	24	25											62 X 59	DVX 59			
160	180	200															
8	9	10	11	12	14	16	18	19	20	21	22			B-63	DVX 63		
60	65	70	75	80	90	100	110	120	125	130	140						
23 24 160 180													123-14LGPT	DVX 123QCL			
8	9	11											1280: MY1040	DVX G9			
60	65	75															



SEWING MACHINE NEEDLE

SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A \emptyset	D	N
DYX 3				$\emptyset 2.49$	60.00	24.00 ~22.00
DYX 3F				$\emptyset 2.49$	60.00	24.00 ~22.00
DYX 3FR				$\emptyset 2.49$	60.00	21.00
DYX 3LR				$\emptyset 2.49$	60.00	22.00
DYX E3				$\emptyset 2.49$	62.00	24.00 ~22.00
EBX 1				$\emptyset 2.02$	49.20	21.00
EBX 1F				$\emptyset 2.02$	49.20	21.00
EBX 3				$\emptyset 2.00$	56.00	21.00
EBX 750				$\emptyset 1.62$	33.00	12.50
EBX 755				$\emptyset 1.62$	33.00	13.00
EBX 1567				$\emptyset 1.39$	33.50	16.00
EYX 1				$\emptyset 1.90$	35.40	13.50
FLX 118A				$\emptyset 1.50$	36.60	16.50
FLX 118B				$\emptyset 1.50$	36.60	16.50
FLX 118GCS				$\emptyset 1.50$	36.60	16.50
FLG-1				$\emptyset 1.50$	00.00	15.00
HAX 1				$\emptyset 2.02$	33.80	11.70



SIZE	EQUIVALENT SYSTEM	SYSTEM
24 25 26 27 180 200 230 250	7 X 3: 794	DYX 3
19 21 23 24 120 130 160 180	7 X 3F: 794F: 7 X 3KSP FL	DYX 3F
22 23 24 140 160 180		DYX 3FR
26 27 230 250	794LR	DYX 3LR
24 180		DYX E3
14 16 18 19 90 100 110 120	490: 2331: HOWE D	EBX 1
18 19 21 22 110 120 130 140	490F: 2331F	EBX 1F
18 21 110 130	2331F LG	EBX 3
10 12 14 16 18 70 80 90 100 110	750(SC)	EBX 750
11 12 14 16 18 19 20 21 22 75 80 90 100 110 120 125 130 140	501(SC): 755H: 1807(D)	EBX 755
7 8 9 10 11 12 14 16 19 55 60 65 70 75 80 90 100 120	459R: 1567	EBX 1567
23 160	128 X 20	EYX 1
8 9 10 11 60 65 70 75	UY118GAS	FLX 118A
9 10 11 12 14 65 70 75 80 90	UY118GBS	FLX 118B
9 10 11 12 65 70 75 80	UY118GKS	FLX 118GCS
7 8 9 55 60 65	UY36211 SY8608	FLG-1
8 9 10 11 12 13 14 16 18 19 20 21 22 60 65 70 75 80 85 90 100 110 120 125 130 140	15 X 1: 130(R): 705(H): PF X 130	HAX 1



SEWING MACHINE NEEDLE



SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A \emptyset	D	N
HAX 1KN		 S Ball		$\emptyset 2.02$	33.80	11.70
LQX 5		 R		1.62	33.90	12.00
LWX 1T		 EM		$\emptyset 2.02$	36.20	10.00
LWX 2T		 EM		$\emptyset 2.02$	39.90	15.00
LWX 3T		 EM		$\emptyset 2.02$	38.70	15.50
LWX 5T		 EM		$\emptyset 2.02$	40.70	15.50
LWX 6T		 EM		$\emptyset 2.02$	40.00	15.00
LWX 251EU		 EM		$\emptyset 2.02$	38.60	14.00
LWX 1669E		 EM		$\emptyset 2.02$	38.60	13.50
MRX R9		 R		$\emptyset 2.02$	29.20	15.00
MTX 134LR		 LR		2.00	33.90	12.50
MTX 134PCL		 PCL		2.00	33.90	15.00 ~ 11.50
MTX 190		 R		1.98	44.50	13.00
MTX 190K		 STU		1.98	44.50	13.00
PFX 134D		 D		2.00	33.90	14.50 ~ 11.50
PFX 134KS		 S		2.00	33.90	14.50 ~ 11.50
PFX 134LL		 LL		2.00	33.90	14.50 ~ 11.50



SIZE										EQUIVALENT SYSTEM	SYSTEM	
14 90											HAX 1KN	
12 14 16 18 19 80 90 100 110 120										68 X 5: 3201	LQX 5	
14 16 90 100										29-BC: 29-12: 1717TP	LWX 1T	
8 9 10 11 12 60 65 70 75 80	14 16 18 90 100 110									29-34	LWX 2T	
9 10 11 12 65 70 75 80		14 16 90 100								251: 29-C-300	LWX 3T	
9 10 11 12 13 14 15 16 18 0C 5C 10C 15C 20C 25C 30C 35C 45C		14 16 18 90 100 110		Columbia New No.						251LG: 29-C-300LG	LWX 5T	
9 10 11 12 65 70 75 80		14 16 18 90 100 110								29-BA: 29-49: 2140BE	LWX 6T	
11 12 75 80										251EU	LWX 251EU	
10 12 70 80		14 16 18 90 100 110								1669E: 3669E	LWX 1669E	
10 12 1D 2D		14 16 18 3D 4D 5D		Marrow No.						MERROW: 60M	MRX R9	
11 75											MTX 134LR	
10 12 70 80		14 16 18 19 90 100 110 120		21 130							134PCL: 797PCL	MTX 134PCL
11 75		14 16 18 19 90 100 110 120		21 22 130 140							190(R)	MTX 190
14 16 18 19 90 100 110 120										190K	MTX 190K	
10 12 70 80		14 16 18 19 20 21 22 90 100 110 120 125 130 140								134D: 797D: 135 X 8TRI	PFX 134D	
9 11 65 75		14 16 18 19 20 21 22 90 100 110 120 125 130 140		23 160							134S: 134KKS: 797S: 135 X 8NCR	PFX 134KS
9 10 11 12 65 70 75 80		14 16 18 19 20 21 22 90 100 110 120 125 130 140		23 24 160 180							134LL: 797LL: 135 X 8TW	PFX 134LL



SEWING MACHINE NEEDLE

SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A ϕ	D	N
PFX 134LR					33.90	14.50 ~ 11.50
PFX 134P					33.90	14.50 ~ 11.50
PFX 797					33.90	14.50 ~ 11.50
PVX 7					33.80	17.50
RMX 29					28.60	10.00
SGX 1906					33.90	13.50 ~ 11.50
SMX 1014B					39.00	15.50
SMX 1014H					39.00	15.50
SMX 332LG					48.50	18.00
SYX 8160					52.00	22.00
TBX 1					33.80	16.00
					33.80	12.50 ~ 10.50
TFX 1					33.80	13.50
					33.80	11.50
TFX 2D					33.80	13.50
TFX 2LL					33.80	13.50
					33.80	11.50 ~ 10.50



SIZE													EQUIVALENT SYSTEM	SYSTEM	
9	10	11	12	14	16	18	19	20	21	22	23	24	25	134LR: 797LR: 135 X 8RTW	PFX 134LR
65	70	75	80	90	100	110	120	125	130	140	160	180	200		
10	12	14	16	18	21	23								134P: 797P: 135 X 8NW	PFX 134P
70	80	90	100	110	130	160									
11	12	14	16											134K: 556KH: 797KH	PFX 797
75	80	90	100												
		14												52 X 7	PVX 7
		90													
11	12	14	16	18										B-29	RMX 29
75	80	90	100	110											
	12	14	16	18	19	21								135 X 53	SGX 1906
	80	90	100	110	120	130									
10	11	12	14	16	18									MY1014B	SMX 1014B
70	75	80	90	100	110										
10	11	12	14											MY1014H	SMX 1014H
70	75	80	90												
			16											332 LGH KSP	SMX 332LG
			100												
			18											SY8160	SYX 8160
			110												
11	12	14	16	18											
75	80	90	100	110											
			19	20	21									16 X 87: 1647	TBX 1
			120	125	130										
10	12	14	16	18											
70	80	90	100	110											
			20											16 X 1: 34(R): 287: 563	TFX 1
			125												
10	12	14	16	18										16 X 2TRI: 34D: 563D	TFX 2D
70	80	90	100	110											
11	12	14	16	18											
75	80	90	100	110											
			19	20	21	22								16 X 2TW: 34LL: 287LL	TFX 2LL
			120	125	130	140									



SEWING MACHINE NEEDLE



SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A \emptyset	D	N
TFX 2LR				1.62	33.80	13.50
				2.00	33.80	10.50
TFX 6				1.60	33.85	13.50
				2.00	33.85	12.50 ~11.50
TFX 287D				1.62	33.90	13.50
TLX 1				\emptyset 2.00	29.60	13.00
TQX 1				1.75	37.20	11.50
TQX 1F				\emptyset 1.75	37.20	11.50
TQX 3				1.75	41.50	11.50
TQX 7				1.75	47.00	17.50
TQX 9				1.75	47.00	10.00
TQXB7				1.75	47.00	14.00
TVX 1				1.98	37.00	13.50
TVX 3				1.98	39.00	13.50
TVX 5				1.98	41.40	13.50
TVX 7				1.98	37.00	13.50
TVX 64				1.98	36.60	13.50



SIZE	EQUIVALENT SYSTEM	SYSTEM
11 12 14 16 18 75 80 90 100 110	16 X 2(LR): 34LR: 16 X 2RTW: 563LR	TFX 2LR
19 20 21 22 120 125 130 140		
11 12 13 14 16 18 75 80 85 90 100 110	16 X 6	TFX 6
19 20 21 120 125 130		
16 18 19 20 21 22 100 110 120 125 130 140	287D	TFX 287D
10 11 12 14 16 18 70 75 80 90 100 110	151 X 1	TLX 1
9 10 11 12 13 14 16 18 19 21 65 70 75 80 85 90 100 110 120 130	29-S: 175 X 1: 1661: 1985	TQX 1
16 18 100 110		
14 16 18 19 20 90 100 110 120 125	175 X 1F	TQX 1F
9 10 11 12 13 14 16 18 19 20 21 22 65 70 75 80 85 90 100 110 120 125 130 140		
14 16 18 19 20 90 100 110 120 125	175 X 3: 1661LG: 2018	TQX 3
9 10 11 12 13 14 16 18 19 20 21 22 65 70 75 80 85 90 100 110 120 125 130 140	29-L: 175 X 7: 2091	TQX 7
14 16 18 90 100 110		
14 16 18 90 100 110	29-LSS: 175 X 9: 1661ELG: 1987	TQX 9
16 100		TQXB7
9 11 12 14 16 18 21 65 75 80 90 100 110 130	149 X 1	TVX 1
9 10 11 12 13 14 16 18 19 20 21 22 23 65 70 75 80 85 90 100 110 120 125 130 140 160	UY124GS: 149 X 3	TVX 3
11 12 14 16 18 19 20 21 22 23 24 75 80 90 100 110 120 125 130 140 160 180		
9 10 11 12 14 16 18 19 20 21 22 65 70 75 80 90 100 110 120 125 130 140	149 X 5	TVX 5
9 10 11 12 14 16 18 19 20 21 22 65 70 75 80 90 100 110 120 125 130 140	149 X 7: MY1002A	TVX 7
10 11 12 14 16 18 19 20 21 22 70 75 80 90 100 110 120 125 130 140	B-64	TVX 64



SEWING MACHINE NEEDLE

SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A \emptyset	D	N
TVX 934		 J Ball		$\emptyset 2.00$	37.00	14.00
TVX C44		 R		$\emptyset 1.98$	37.00	13.50
TVX C45		 R		$\emptyset 1.98$	37.00	13.50
UNX 154		 R		$\emptyset 2.02$	31.40	14.50
UOX 113GS		 R		$\emptyset 2.00$	36.60	13.50
UOX 154		 R		$\emptyset 2.02$	31.40	14.50
UOX 163GAS		 R		$\emptyset 2.00$	37.50	13.50
UYX 121GBS		 B Ball		$\emptyset 1.98$	39.00	14.50 ~ 13.50
UYX 128GAS		 R		$\emptyset 1.98$	39.00	14.50 ~ 13.50
UYX 128GASKN		 S Ball		$\emptyset 1.98$	39.00	14.50
UYX 154GBS		 J Ball		$\emptyset 2.02$	31.60	14.50
UYX 154GFS		 B Ball		$\emptyset 2.02$	31.60	14.50
1717SRUE		 EM		$\emptyset 2.02$	36.00	10.00



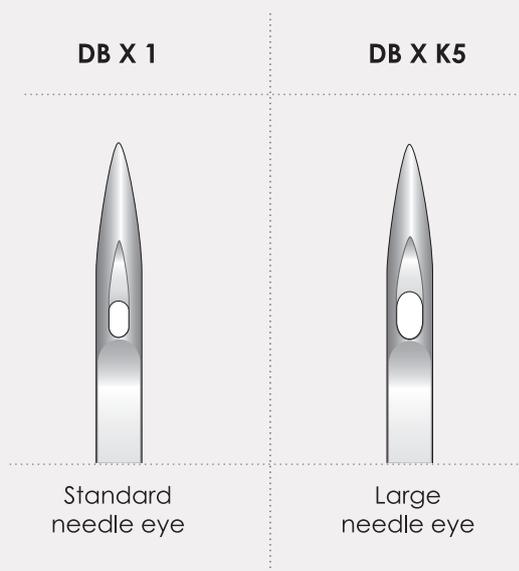
SIZE	EQUIVALENT SYSTEM	SYSTEM
14 90	934	TVX 934
14 90		TVX C44
14 90		TVX C45
9 10 11 12 14 16 18 65 70 75 80 90 100 110	UY8454GS	UNX 154
9 10 11 12 13 14 16 18 19 20 21 22 025 027 029 032 034 036 040 044 049 054 Union Special No.	UY113GS	UOX 113GS
9 10 11 12 13 14 16 18 20 65 70 75 80 85 90 100 110 125	UY154GAS: 151 X 21	UOX 154
10 11 12 14 16 027 029 032 036 040 Union Special No.	UY163GAS	UOX 163GAS
10 11 12 14 16 18 027 029 032 036 040 044 Union Special No.	UY121GBS	UYX 121GBS
7 8 9 10 11 12 13 14 16 18 19 20 21 22 23 022 025 027 029 032 034 036 040 044 049 054 Union Special No.	UY128GAS: MY1040:1280	UYX 128GAS
8 9 10 11 12 025 027 029 032 Union Special No.	UY128 SAN10	UYX 128GASKN
9 10 11 12 025 027 029 032 Union Special No.	UY154GBS	UYX 154GBS
9 10 11 025 027 029 Union Special No.	UY154GFS	UYX 154GFS
16 18 100 110		1717SRUE



MULTI-HEADED EMBROIDERY NEEDLE



SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	Aφ	D	N
DBX 287WKH					33.90	16.00
DBX K5					33.80	16.00
DBX K13					33.80	13.50



CHARACTERISTICS OF DB X K5

1. The eye is longer by one or two sizes and wider by two or four sizes compared with the eye of DB X 1. The larger eye size makes thread fitting easier and reduces the friction between the needle and the thread because the thread can move smoothly in the needle eye.
2. The groove is wider by two or four sizes than that of DB X 1. Thanks to the protection from thread's friction, thread breakage or fraying is naturally reduced.
3. Its supplementary shoulder solves the problem of needle deflection by reinforcing the needle blade.



SIZE							EQUIVALENT SYSTEM	SYSTEM
10	11	12	14	16	18	21	287WKH: SY6633	DBX 287WKH
70	75	80	90	100	110	130		
8	9	10	11	12	13	14		DBX K5
60	65	70	75	80	85	90		
9	10	11	12	14			1738ES: PF1738ES	DBX K13
65	70	75	80	90				





SHUTTLE EMBROIDERY NEEDLE

SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A ϕ	D	N
SHX 1					43.40	20.50
SHX 1SA					43.40	20.50
SHX 1SP					43.40	18.00
SHX 1TOP					47.50	20.50
SHX 1TOP SA					47.50	20.50
SHX 3					43.40	21.00
SHX 3TOP					47.50	20.50
SHX 3TOP SA					47.50	20.50
SHX C25					43.40	20.50
SHX C25TOP					47.50	20.50
SHX C253TOP					47.50	20.50
SHX C43					43.40	20.50
SHX C75SP					43.40	18.00
SHX C92					47.50	21.00
SHX E1 TOP					48.50	21.00
SHX E56					47.50	21.00
SHX E75					44.40	20.50
SHX E75SP					44.40	18.00
SH X L75					45.40	20.50
SMX 854					43.50	17.00



SIZE							EQUIVALENT SYSTEM	SYSTEM
00 70	0 80	1 90	2 3 100 110	4 5 130 140	8 190(24.5)	Shiffli No.	854S	SHX 1
		1 90	2 3 100 110	Shiffli No.			854 SA	SHX 1SA
		1 90	2 3 100 110	Shiffli No.				SHX 1SP
	0 80	1 90	2 3 100 110	4 5 130 140	Shiffli No.		L83: L83 TOP	SHX 1TOP
	0 80	1 90	2 3 100 110	4 5 130 140	Shiffli No.		L83 TOP SA	SHX 1TOP SA
		1 90	2 3 100 110	4 130	Shiffli No.		110S	SHX 3
00 70	0 80	1 90	2 3 100 110	4 130	Shiffli No.		110S TOP	SHX 3TOP
	0 80	1 90	2 3 100 110	4 5 130 140	Shiffli No.		110S TOP SA	SHX 3TOP SA
			2 3 100 110	Shiffli No.				SHX C25
			3 110	Shiffli No.				SHX C25TOP
			3 110	Shiffli No.				SHX C25 3TOP
		1 90	2 3 100 110	Shiffli No.				SHX C43
			3 110	4 130	Shiffli No.			SHX C75SP
			2 3 100 110	4 130	Shiffli No.			SHX C92
		1 90	2 3 100 110	Shiffli No.				SHX E1TOP
			2 100	Shiffli No.				SHX E56
			3 110	Shiffli No.				SHX E75
			3 110	Shiffli No.				SHX E75SP
		1 90	2 3 100 110	Shiffli No.				SHX L75
	0 80	1 90	2 3 100 110	4 130	Shiffli No.		0854	SMX 854



LINKING NEEDLE



SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A \varnothing	D	N
PYE- 2					28.95	13.00
PYN- 2					28.95	12.00
PYN- 3					28.95	12.00



BOOK BINDING NEEDLE



SYSTEM	NEEDLE FIGURE (ACTUAL SIZE)	POINT SHAPE				
			X-X'	A \varnothing	D	N
BOM- 1					34.60	9.00
BOY- 7					37.40	16.00
BOZ- 3						7.00



SIZE							EQUIVALENT SYSTEM	SYSTEM
11 85	14 90	16 100	18 110	19 120	21 130	22 140	23 160	PYE- 2
	14 90							PYN- 2
11 85	14 90	16 100						PYN- 3



SIZE							EQUIVALENT SYSTEM	SYSTEM
					23 160			BOM- 1
					23 160			BOY- 7
					23 160			BOZ- 3



EQUIVALENT SYSTEM



OTHER SYSTEM	ORANGE SYSTEM	OTHER SYSTEM	ORANGE SYSTEM
7 X 3	DY X 3	62 X 21	DV X 1
7 X 3F	DY X 3F	62 X 43	DV X 43
7 X 3KSP FL	DY X 3F	62 X 57	DV X 57
15 X 1	HA X 1	62 X 57NW	DV X 57P
16 X 1	TF X 1	62 X 59	DV X 59
16 X 2 (LR)	TF X 2LR	68 X 5	LQ X 5
16 X 2RTW	TF X 2LR	71 X 1	DL X 1
16 X 2TW	TF X 2LL	81 X 1	DC X 1
16 X 6	TF X 6	81 X 5	DC X 5
16 X 87	TB X 1	81 X 27	DC X 27
16 X 95	DB X 95	82 X 1	DM X 1
16 X 230RTW	DB X F2	82 X 13	DM X 13
16 X 231	DB X 1	88 X 1	DA X 1
16 X 257	DB X 1	92 X 1	DN X 1
24 X 1	DH X 1	108 X 1	BQ X 1
29 X 1	DI X 1	110S	SH X 3
29 X 3	DI X 3	110S TOP	SH X 3TOP
29 X 4 (TW)	DI X 4LL	110S TOP SA	SH X 3TOP SA
29-12	LW X 1T	123-14LGPT	DV X 123QCCL
29-20	LW X 2T	124 X 2	DR X 2
29-34	LW X 2T	128 X 20	EY X 1
29-49	LW X 6T	130 (R)	HA X 1
29-BA	LW X 6T	134 (R)	DP X 5
29-BC	LW X 1T	134D	PF X 134D
29-C-300	LW X 3T	134K	PF X 797
29-C-300LG	LW X 5T	134KKS	PF X 134KS
29-L	TQ X 7	134LL	PF X 134LL
29-LSS	TQ X 9	134LR	PF X 134LR
29-S	TQ X 1	134 MR	DPX 5MR
34 (R)	TF X 1	134P	PF X 134P
34D	TF X 2D	134PCL	MT X 134PCL
34LL	TF X 2LL	134S	PF X 134KS
34LR	TF X 2LR	134 SAN10	DPX 5KN
52 X 7	PV X 7	134-35 (R)	DP X 35R
60M	MR X R9	134-35K	DP X 35K
61B	DP X 1	134-35LR	DP X 35LR



.....

OTHER SYSTEM	ORANGE SYSTEM	OTHER SYSTEM	ORANGE SYSTEM
134-35PCL	DP X 35PCL	214 X 1	DD X 1
134-35S	DP X 35S	214 X 2RTW	DD X 2LR
134-35TRI	DP X 35D	214 X 2TW	DD X 2LL
135 X 1	DP X 1	251	LW X 3T
135 X 5	DP X 5	251EU	LW X 251EU
135 X 7	DP X 5	251LG	LW X 5T
135 X 8NCR	PF X 134KS	262A	AI X 1
135 X 8NW	PF X 134P	287	TF X 1
135 X 8RTW	PF X 134LR	287D	TF X 287D
135 X 8TRI	PF X 134D	287LL	TF X 2LL
135 X 8TW	PF X 134LL	287WH	DB X 95
135 X 16	DP X 16P	287WKH	DB X 287WKH
135 X 16DIA	DP X 16DI	328	DD X 1
135 X 16NW	DP X 16P	328LL	DD X 2LL
135 X 16TRI	DP X 16D	328LR	DD X 2LR
135 X 17	DP X 17	332	DI X 3
135 X 17 MR	DP X 17MR	332LGH KSP	SM X 332LG
135 X 17 SAN5	DP X 17SSN=U/F	332LL	DI X 4LL
135 X 39	DP X 39	354	DP X 1
135 X 53	SG X 1906	459R	EB X 1567
142 X 5	DO X 5	490	EB X 1
149 X 1	TV X 1	490F	EB X 1F
149 X 3	TV X 3	501 (SC)	EB X 755
149 X 5	TV X 5	556KH	PF X 797
149 X 7	TV X 7	558	DO X 558
151 X 1	TL X 1	563	TF X 1
151 X 21	UO X 154	563D	TF X 2D
154G	UO X 154	563LL	TF X 2LL
175 X 1	TQ X 1	563LR	TF X 2LR
175 X 1F	TQ X 1F	621	DC X 1
175 X 3	TQ X 3	705 (H)	HA X 1
175 X 7	TQ X 7	705KH	BK X 705KD
175 X 9	TQ X 9	750 (SC)	EB X 750
176 X 1	AI X 1	755H	EB X 755H
190 (R)	MT X 190	759	DV X 1
190K	MT X 190K	794	DY X 3



EQUIVALENT SYSTEM



OTHER SYSTEM	ORANGE SYSTEM	OTHER SYSTEM	ORANGE SYSTEM
794F	DY X 3F	1886KK	DC X 13
794H	DY X 3	1906	SG X 1906
797D	PF X 134D	1985	TQ X 1
797KH	PF X 797	1987	TQ X 9
797LL	PF X 134LL	2018	TQ X 3
797LR	PF X 134LR	2091	TQ X 7
797P	PF X 134P	2134-35 (R)	DP X 35R
797PCL	MT X 134PCL	2134-35K	DP X 35K
797S	PF X 134S	2134-35LR	DP X 35LR
854S	SH X 1	2134-35PCL	DP X 35PCL
854 SA	SH X 1SA	2134-35S	DP X 35S
854S TOP	SH X 1TOP	2134-35TRI	DP X 35D
0854	SM X 854	2140BE	LW X 6T
1128	DA X 1	2140TP	LW X 2T
1280	UY X 128GAS	2167	DP X 17
1286	DN X 1	2331	EB X 1
1567	EB X 1567	2331F	EB X 1F
1628	DV X 1	2331F LG	EB X 3
1647	TB X 1	3201	LQ X 5
1661	TQ X 1	3669E	LW X 1669E
1661ELG	TQ X 9	5640	DV X 57
1661LG	TQ X 3	5640NW	DV X 57P
1669E	LW X 1669E	B-27	DC X 27
1717TP	LW X 1T	B-27 SAN10	DC X 27KN
1738	DB X 1	B-29	RM X 29
1738A	DB X 95	B-63	DV X 63
1738AK	DB X A20	B-64	TV X 64
1738ES	DB X K13	B-155	BB X 155
1738KK	DB X N20	DB X K5 KK	DB X K13
1738LR	DB X F2	EB X 2	EB X 1F
1738 MR	DB X 1MR	HOWE D	EB X 1
1738 SAN10	DB X 1KN	L83	SH X 1TOP
1778	DO X 5	L83 TOP	SH X 1TOP
1807D	EB X 755	L83 TOP SA	SH X 1TOP SA
1881	DH X 1	MERROW	MR X R9
1886	DC X 27	MY1002A	TV X 7



OTHER SYSTEM	ORANGE SYSTEM	OTHER SYSTEM	ORANGE SYSTEM
MY1003	DN X 1	UY113GS	UO X 113GS
MY1014B	SM X 1014B	UY118GAS	FL X 118A
MY1014H	SM X 1014H	UY118GBS	FL X 118B
MY1023	DC X 27	UY118GKS	FL X 118GCS
MY1023A	DC X 1	UY121GBS	UY X 121GBS
MY1040	UY X 128GAS	UY121GS	DV X 1
PF1738ES	DB X K13	UY124GS	TV X 3
RM X 27	DC X 27	UY128GAS	UY X 128GAS
SG X 7713	DK X 2500	UY128GS	UY X 128GAS
SY1902	CP X 1	UY128GS SAN10	UY X 128GASKN
SY1955	DP X 5	UY143GS	DN X 1
SY2254	DB X 1	UY154GAS	UO X 154
SY2851	TQ X 1	UY154GBS	UY X 154GBS
SY6633	DB X 287WKH	UY154GFS	UY X 154GFS
SY6790	DP X 5	UY163GAS	UO X 163GAS
SY7713	DK 2500	UY8454GS	UN X 154
SY8160	SY X 8160	UY36211	FLG-1
SY8608	FLG-1		



EQUIVALENT SIZE



METRIC NUMBER (Nm)	BLADE DIAMETER (mm)	SYSTEM									
		ORANGE	COLUMBIA		LEWIS		MERROW	SCHIFFLI	UNION SPECIAL	292 BONIS	
			OLD NO.	NEW NO.	CURVED	STRAIGHT					
55	0.55	7						000	022	18	
60	0.60	8			2			00		16	
65	0.65	9			2½			0	025	14	
70	0.70	10	0	5		10		1	00	027	13
75	0.75	11	1	10	3				029:030	12	
80	0.80	12	1½	15		12		2	0	032	11
85	0.85	13	2	20						034	10
90	0.90	14	2½	25	3½	14		3	1	036	9
95	0.95	15	3	30							8
100	1.00	16	3½	35	4	16		4	2	040	7
105	1.05	17									
110	1.10	18	4	45	4½	18		5	3	044	6
120	1.20	19			5	19		6		047:048	4
125	1.25	20	4½			20				049	
130	1.30	21	5					7	4		3
140	1.40	22	5½		5½				5	054	2
150	1.50	22½			6			8		060	1
160	1.60	23							6		0
170	1.70							9	7	067	
180	1.80	24			7					078	
190	1.90								8		
200	2.00	25						10		079:080	
230	2.30	26								090	
250	2.50	27								100	
280	2.80	28									
300	3.00	29								120	
330	3.30	30									
350	3.50	31								140	
380	3.80	32									
400	4.00	33								156	
430	4.30	34								172	

ROUND POINT



SYMBOL OF ORANGE	SYMBOL OF OTHERS	SHAPE OF POINT		DESCRIPTION
SPI	SHASPI, R-SPI, S SET, RS			slim set point
R	SET			normal round point
STU	H SET, R-STU, STUB			heavy blunt round point
S				extra light ball point
J	NYR, SIN, SES, L BALL, FFG, BPL			light ball point
B	LAC, SI, SUK, M BALL, FG, BPM			medium ball point
U	CAL, G, SKU, H BALL, G, BPH			heavy ball point
Y	BIL, TR, SKF, C, EX H BALL, BPEH			extra heavy ball point
EL	EXEL, EL, LF ECC SET, SEL			left eccentric round point
ER	RT ECC SET			right eccentric round point



LEATHER POINT



SYMBOL OF ORANGE	SYMBOL OF OTHERS	SHAPE OF POINT	DESCRIPTION
D	TRI		triangular point
DI	DIA		diamond point
LL	TW		twist point
LR	R TW, N R TW, B2RS		reverse twist point
P	W, NW		wedge point
PCL	NWLT, TW GR		narrow wedge point with left twist groove
PCR	NWRT, R TW GR		narrow wedge point with right twist groove
Q	SQ, QRK		square point
S	CR		cross point
SP			spear point

THREAD PROPERTIES



PROPERTIES \ THREAD	NYLON	POLYESTER	COTTON	SILK	LINEN	REMARK
Tensile Strength	1	2	4	3	3	1 : Superior 2 : Excellent 3 : Good 4 : Fair 5 : Poor
Elastic Recovery	1	2	5	5	5	
Flex Life	2	3	5	3	4	
Sunlight Resistance	3	3	5	4	5	
Abrasion Resistance	1	2	5	4	4	
Mildew Resistance	1	1	5	3	5	
Heat Resistance	3	3	3	2	3	
Acid Resistance	4	2	5	5	5	
Alkali Resistance	3	4	5	5	5	
Specific Gravity	1.14	1.38	1.50	1.31	1.50	

THREAD & NEEDLE



NEEDLE SIZE (orange/numeric)			POLYESTER				NYLON		COTTON		SILK	
			MULTIFILAMENT		SPUN		MULTIFILAMENT		Ne β	tex	Nm	tex
			Nm	tex	Nm	tex	Nm	tex				
6/ 50	8/ 60	10/ 70			120/3	8/3			80/3	7/3		
8/ 60	10/ 70	12/ 80	80/3	12/3	100/3	10/3	100/3	10/3	70/3	8/3	120/3	8/3
10/ 70	12/ 80	14/ 90			70/3	14/3	70/3	14/3	50/3	12/3	100/3	10/3
12/ 80	14/ 90	16/100	60/3	16/3	60/3	16/3	60/3	16/3	40/3	15/3	70/3	14/3
14/ 90	16/100	18/110	40/3	25/3	50/3	20/3	50/3	20/3	30/3	20/3	60/3	16/3
16/100	18/110	19/120			40/3	25/3	40/3	25/3	20/3	30/3	50/3	20/3
18/110	19/120	21/130	30/3	33/3							40/3	25/3
19/120	21/130	22/140			30/3	33/3	30/3	33/3	12/3	49/3	30/3	33/3
21/130	22/140	23/160	20/3	50/3	20/3	50/3						
22/140	23/160	24/180	10/3	100/3							20/3	50/3
23/160	24/180	25/200			10/3	100/3					10/3	100/3

Nm (Metric number) : the length of a thread weighing 1.00g
Ne β (English number for cotton) : the length of a thread weighing 0.59g
den (denier) : the weight of a thread in gram per 9.000m
tex : the weight of a thread in gram per 1.000m



TECHNICAL TERMS

Ball Point Needle	41
Bending Test Device	42
Blade	42
Chromium Plate	42
Curved Blade	42
Cutting Point	43
Deep Cooling	43
Flattening	43
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Heat Resistant Temperature of Textile Fibres	44
Heat Treatment	45
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Needle Breakage	46
Needle Heating	46
Needle Size	47
Needle Wire	47
Position of Leather Point	47
Reduced Blade	47
Round Point	48
Scarf	48
Seam Puckering	48
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Sewing of Leather	49
Sewing of Woven and Knitted Synthetic Fabrics	49
Shank	50
Stitch Skipping	50
Super-Finished Needles for Synthetic Fibres	51
Supplementary Shoulder	51
Tapered Blade	51
Thread Breakage (Fraying)	52
Thread Direction	52
Ultra-Finished Needle	52

Orange
Small, Strong & Global



BALL POINT NEEDLE

Ball point needles are especially adapted for the use of knit fabrics, mesh fabrics, lace, hosiery and elastic materials. These ball point can be made into any kind of needle upon your request.

There are four kinds of ball point such as the J, B, U, and Y in orange needles. In general, the B ball point is frequently used.

If you find that fabric yarns are cut and that bigger stitch holes are made by stretched seams sewed with the normal type of needle, the ORANGE BALL POINT NEEDLE or the SPECIAL NEEDLE FOR KNIT FABRIC must be used. Select the suitable needle in the following sequence.

1. First sew with a standard size number suitable for knit fabric and determine which type of ball point is the most suitable.
2. In case it does not go well even with that, try to use a thinner needle by one size number. When using the needle, the strength of the needle must be taken into consideration.
3. If a ball point needle cannot resolve the sewing problems or if a thinner needle cannot be used, we recommend you to use our special needle for knit fabric (KN Type Needle). For further details, please refer to "KNITTED FABRICS SEWING" in page 45.

SYMBOL	USE	LONGITUDINAL SECTION
J	❖ Suitable for common knit fabrics and can be used for most of the knit fabrics for ladies', gentlemen's and children's clothing.	<p>light ball tip $B \times 1/10$</p>
B	❖ Effective for knit fabrics of relatively coarse gauges such as mesh fabrics.	<p>medium ball tip $B \times 1/5$</p>
U	❖ Suitable for brassieres, girdles, etc ... made of elastic materials such as rubber, spandex, etc ...	<p>heavy ball tip $B \times 1/3$</p>
Y	❖ Same as the U type	<p>extra heavy ball tip $B \times 1/2$</p>



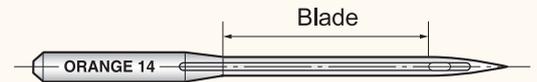
BENDING TEST DEVICE

This is a computerized device to check the elastic limit, fracture and deformation of the needle blade.



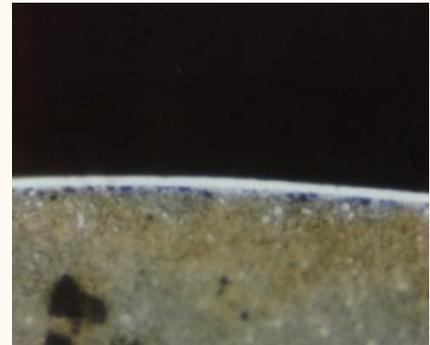
BLADE

This refers to the part of the needle from the end of the shoulder to the top of the eye.



CHROMIUM PLATE

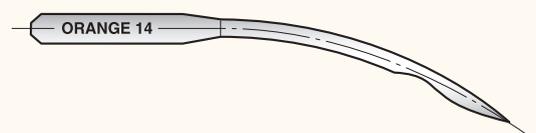
A chromium layer deposited electroplately on the needle surface gives the needles durability against the heat generated by the friction and resistance against chemicals and maintains a gorgeous external appearance. This finish has been proved very efficient for sewing of synthetic or blended fabrics and the tougher grades of leather.



Thickness of chromium plating layer
(magnification : 1,500)

CURVED BLADE

Needles for blind stitching have curved blades of which curvatures are different from needle to needles.



CUTTING POINT

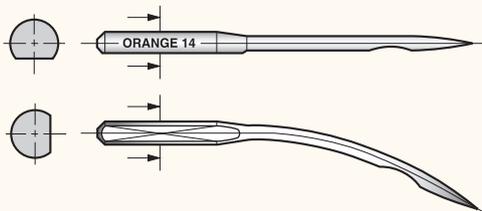
Please refer to “Leather Point” in page 46.

DEEP COOLING



This is a process of freezing needles at about minus 100°C temperature which transforms the remaining austenite of the needle structure into martensite and furnishes the best limit of elasticity and increases the toughness after the tempering operation.

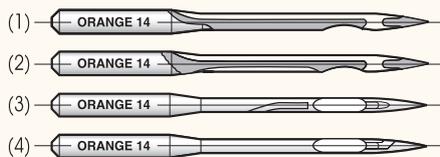
FLATTENING



This operation is making a flat section at the needle shank. Household and most of the blind stitch sewing machine needles have a flat shank.

GROOVES

There are two basic types of grooves, the long groove and the short groove. Their main function is to protect the sewing thread, and allow free movement of it while the needle is penetrating in the sewing material.



1. Single Groove
2. Double Groove
3. Spiral Groove (single or double)
4. Twist Groove (right or left)



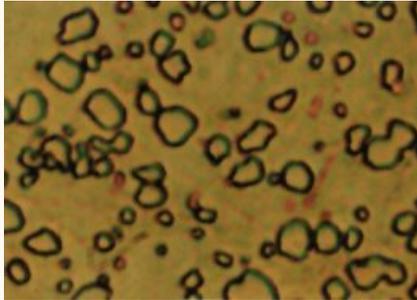
HEAT RESISTANT TEMPERATURE OF TEXTILE FIBRES

KINDS OF TEXTILE FIBRES	HEAT RESISTANT TEMPERATURE
Natural Fibres of Vegetable Origin : cotton, flax and similar.	about 120°C
Natural Fibres of Animal Origin : wool, natural silks.	Decomposition at 130°C Carbonization at 300°C
Man-made Fibres of Vegetable Origin : 1. Viscose, Rayon (regenerated cellulose), Cupro	Decomposition at about 180 ~ 200°C
2. Acetate	Softening at about 220°C Melting at 250 ~ 260°C
3. Triacetate	Softening at 230 ~ 250°C Melting at 300°C
Man-made Fibres of Synthetic Origin : 1. Polyethylene (PE)	Softening at 110 ~ 120°C Melting at 130 ~ 140°C
2. Polytetrafluoroethylene (PTF) (Fluoro Fibre)	Softening at 320°C Decomposition at 400°C
3. Polypropylene (PP)	Softening at 140 ~ 160°C Melting at 160 ~ 170°C
4. Polyvinylchloride (PVC) (Chloro Fibre)	Softening at 70 ~ 80°C Melting at 180 ~ 190°C
5. Polyvinyl alcohol (PVA)	Softening at 200 ~ 220°C Melting at 230°C
6. Polyacrylonitrile (PAC)	Softening at 215 ~ 260°C Melting at 215 ~ 300°C
7. Polyamide	Mostly Softening at 220 ~ 230°C Melting at about 240°C
8. Polyester (PES)	Softening at 230°C Melting at about 250°C or at about 290°C
9. Polyurethane (PUR)	Softening at 170°C Melting at about 180°C
10. Polyurethane elastomere (PUE)	Softening at 175 ~ 230°C Melting at 230 ~ 290°C

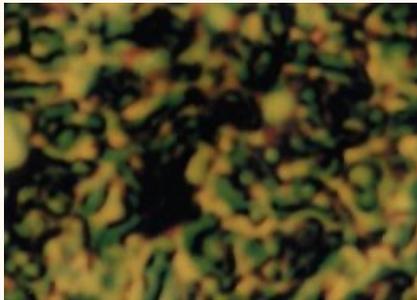
HEAT TREATMENT

This process is composed of a hardening, subzero treatment and tempering.

- **Hardening** : Hardening is done to achieve a high delicacy in its structure without decarburization.
- **Subzero treatment** : Putting needles into a deep cooling treatment at a temperature of minus 100°C to stabilize their micro-structure.
- **Tempering** : By tempering needles get the best elasticity and durability suitable for high speed sewing work.



Before Heat Treatment

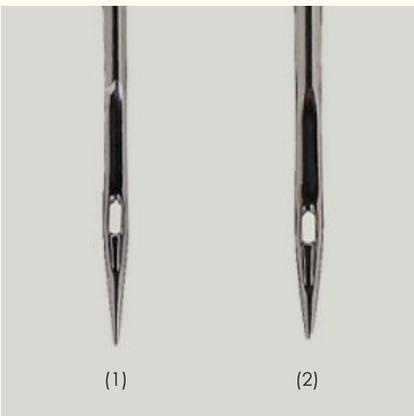


After Heat Treatment

KNITTED FABRICS SEWING

As knitted fabrics are made by combining rows of loops, there is the possibility that loops can be destroyed by the needle. In choosing a proper needle, it is absolutely necessary to find out the correct needle size and point form.

Please use KN-needles which have small ball points (slim balls) to minimize the penetration resistance and avoid thread breakage. They also have a special form of clearance above eye to make easier loop formation and avoid skip stitching. In addition, please check the needles periodically for wear or damage, especially the point and spot area.



(1) KN-Needle
(2) Conventional Needle



LEATHER POINT

The term “ Leather Point ” applies to a needle having cutting points and cutting points are classified according to the shape and position of the cutting edge.

Leather points are generally used for stitching hard leathers and similar materials. The primary function of this point is to cut the material for easier penetration under less friction and heat. The secondary function is to make a desired shape in a stitch. In determination of the correct cutting point, the seam appearance, angles of the cutting edges, and the number of stitches per inch should be considered. For further details, please refer to page 38.

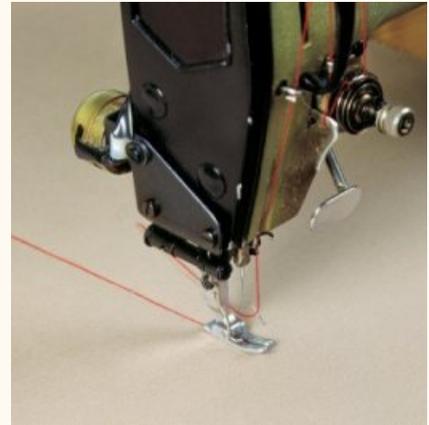
P	
S	
LL	
LR	
D	
Q	

The above figures show estimated shapes to be made on sewing material when various cutting points incise to sew.

NEEDLE BREAKAGE

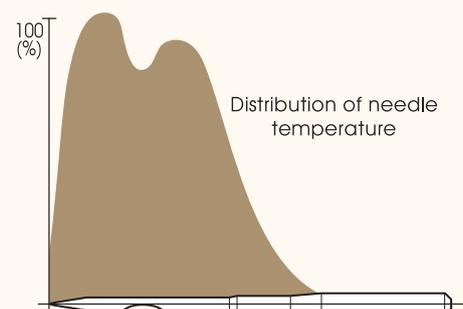
The causes of this trouble are

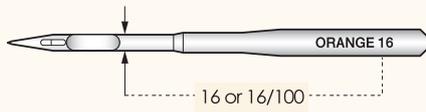
- Too small size needle is used for seaming operation.
- The needle is not suitable for the used machine.
- The point of the needle is blunt to bring in too much penetration resistance.



NEEDLE HEATING

Needle heating generally results from friction when sewing at very high speed; the most severe problems are caused when sewing with synthetic fabrics or threads.





NEEDLE SIZE

Needle size indicates the diameter of the needle blade shortly above the scarf or the short groove. According to the metric system (Nm) the unit of the needle size figure is denoted in hundredths of a millimetre and it is shown on the shank of the needle. Besides the metric system there are some other (numbering) systems which also indicate the needle size.

NEEDLE WIRE

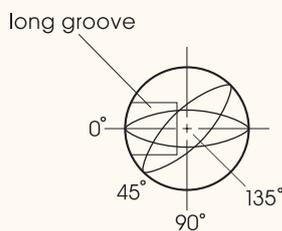
There are some essential requirements in order for needle wire to be good raw material for superior quality needles.

- No decarburization
- Proper tensile strength
- Proper carbide density
- Proper elongation percentage
- No oxidation
- Proper chemical composition (analysis)



POSITION OF LEATHER POINT

Direction of sight : from shank to point



REDUCED BLADE

The diameter of the lower middle part of the blade is slightly smaller than the nominal blade diameter. This is used for stitching dense, fabrics tightly woven or heavy fabrics, synthetic fabrics, leathers and non-fabric materials.



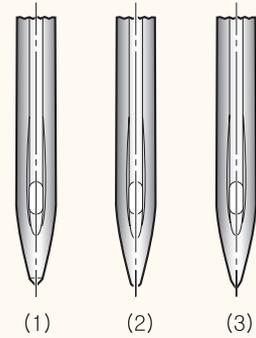


ROUND POINT

The term "Cloth Point" applies to the needle having round points. All cloth point needles are designed for stitching fabrics and other similar materials but in some cases they may be recommended for stitching light grades of leather or other nonwoven materials.

For the details please refer to page 37.

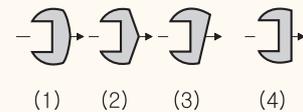
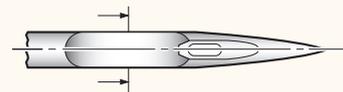
1. Set Tip
2. Ball Tip
3. Round Set Tip



SCARF

This term refers to a clearance made by die-pressing in the blade just above the eye. This is sometimes called "spot" or "clearance above eye" and it enables the hook to approach closer to the center line of the needle.

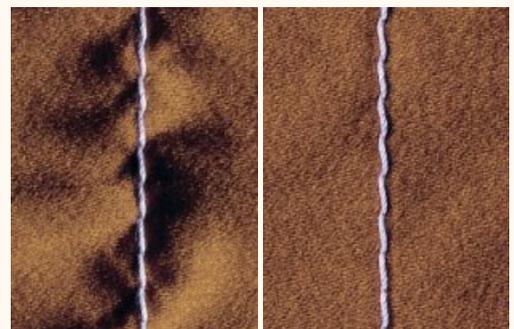
1. Radius Scarf
2. "V" Scarf
3. Angle Scarf
4. Flat Scarf



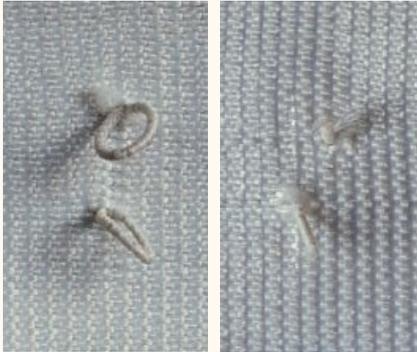
SEAM PUCKERING

Seam Puckering, often appearing when sewing synthetic fabrics, is a distortion of yarn fibres and thread along the seam. To avoid or reduce puckering we recommend the following:

1. Use the smallest size of thread and needle possible
2. Use a smaller ball point needle.
3. Use the same type of material in the thread and fabrics.
4. Use minimum pressure on the presser foot.
5. Tension of the needle thread and the bobbin or looper thread should be minimal.
6. Use feed dogs with finer teeth.
7. Reduce the number of stitches.



SEWING OF ELASTIC MATERIAL

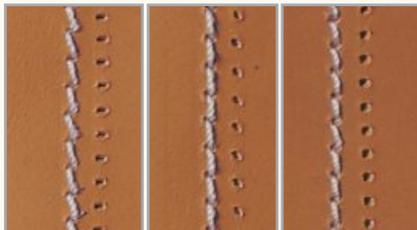


Elastic tape with pulled-out rubber thread

Elastic tape with cut rubber thread

When sewing elastic materials, cutting of the yarn in the fabrics often occurs. To avoid that, it is in principle recommended to use ball point needles which push the yarn or thread aside instead of cutting or perforating it. At the same time, please use a thinner size needle.

SEWING OF LEATHER



P

LL

LR

Shape of stitching by leather point

For sewing leather the cutting point needles (sometimes called "leather point needles") are generally used. There are many kinds of cutting points for the operators to choose a different form of point for each grade of leather and each class of work. For more details please refer to the "Leather Point" of page 38.

SEWING OF WOVEN AND KNITTED SYNTHETIC FABRICS



Damaged meshes of knitted fabrics by needle

The most serious problem in the process of sewing synthetic materials lies in the low heat resistance of the synthetic fibres. Their softening point is between 180°C and 230°C, and the melting point is between 230°C and 260°C. In high speed sewing, the temperature of the needle reaches the melting point of the synthetic fiber soon, and then it begins to melt and adheres to the groove or eye of the needle. As a consequence, stitch skipping and thread breakage occur and naturally the sewing operation will stop. To cope with these troubles is as follows:

1. Choose the suitable needle which can minimize the surface friction of the needle. In our products, we can recommend the SUPER-FINISHED NEEDLES specially made by coating phosphate and fluor resin based materials on the needle surface.

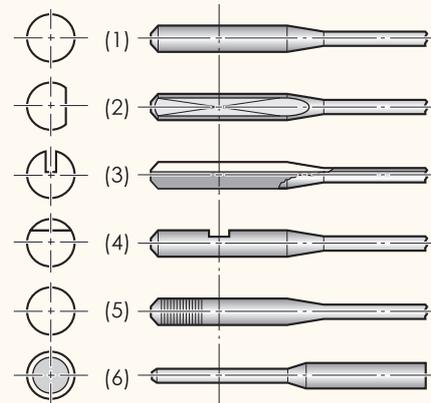


2. Decrease the needle temperature either by oiling the sewing material or sewing thread with a special lubricant or by using a lubricated sewing material or sewing thread for smoothness and radiation.
3. Prevent the rise of the needle temperature by compulsory cooling with air-blowing on the needle.
4. Reduce the heat generated on the needle below the melting point of the synthetic fibre by lowering the revolutions of the sewing machine.
5. Increase the heat-resistance of the sewing thread and sewing material to be used.

SHANK

This term refers to the portion of the needle between the butt and the top of the shoulder.

1. Round Shank
2. Flattened Shank
(Flattened on one side, two sides, etc...)
3. Grooved Shank
4. Notched Shank
5. Threaded Shank
6. Reduced Shank



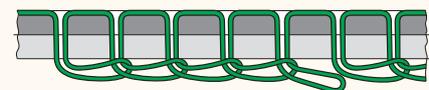
STITCH SKIPPING

This happens when the looper or hook fail to enter the thread loop during the stitch formation. Possible causes are

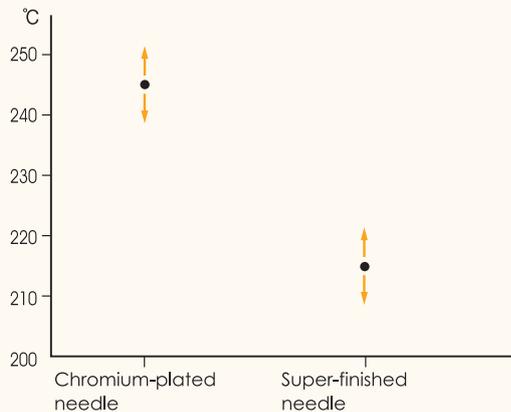
- Incorrect timing of the looper or hook
- Incorrect setting of the take up or pull off devices
- Needle vibration or staggering
- Wrong size needle hole plate
- Needle deflection by resistance of the material
- Loss of thread control due to the wrong size needle being used for the thread used in sewing.



Lock stitch skipping



Chain stitch skipping



CONDITION

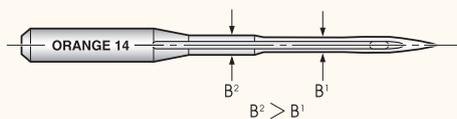
- needle : DB X 1 #14
- sewing material : Polyester Serge 4-Fold
- sewing speed : 3,000 S.P.M.
- thread : Cotton #50



Super-finished needle



Chromium-plated needle



SUPER-FINISHED NEEDLES FOR SYNTHETIC FIBRES

In high speed sewing of synthetic fibres, the melting trouble often occurs because of their low melting point of 230~260°C approximately. To cope with such trouble it is recommended to use SUPER-FINISHED NEEDLES (Sometimes called "LO-TEMP FINISH" needles or "BLUKOLD NEEDLE" or "PH-TE-NEEDLE"), especially made by coating phosphate and fluor resin based materials on the needle surface. Thanks to the low friction-coefficient and inadhesive surface property of the above coating, the remarkable advantages to reduce the 'needle heat' and to prevent the clogging of the needle eye from melting residues of synthetic fibres are gained.

Consequently you can enjoy speeding-up sewing by more than 1,000 s.p.m. in comparison with conventional needles. Besides, the point of these needles is generally shaped in a ball to avoid cutting of fibres. For your reference, their black(bottom) and green(top) surface color does not stain the sewing material. This SUPER-FINISHED treatment can be applied on any type of needles according to your request.

SUPPLEMENTARY SHOULDER

The supplementary shoulder needle has a larger diameter at the upper portion of the blade as compared with the diameter at the needle eye. The supplementary shoulder gives reinforced strength to the needle blade, which can overcome the problem of needle deflection.

TAPERED BLADE

The blade just below the shoulder is larger in diameter than the blade just above the eye. The blade tapers gradually from the shoulder to the eye. This structure serves to strengthen the needle blade especially when the entire length of the blade is subject to friction when penetrating materials.

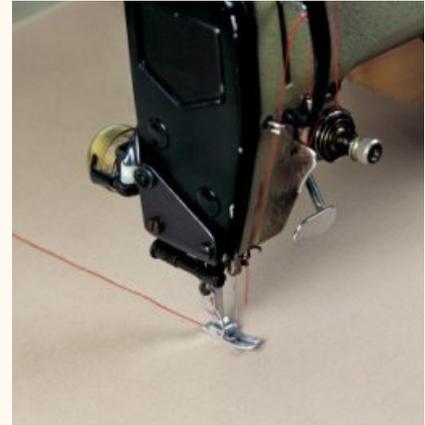


THREAD BREAKAGE(FRAYING)

This is almost the result of some kind of interference with the needle thread. It can be caused by any unsmooth edge in the area of the path where the needle thread travels along or by too tight tension and excessive needle heat.

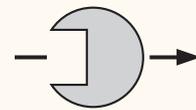
To avoid thread breakage or fraying

- Check the parts such as the thread guides, needle, needle hole plate, presser foot, feed dog, hook and looper are free of burrs or sharp edges.
- Use lighter tension
- Check for the correct needle size: Test with the next larger size needle.



THREADING DIRECTION

Usually the threading of the sewing machine needle is done from the side of long groove to the side of short groove or clearance above eye which faces the hook or looper.



ULTRA-FINISHED NEEDLE

As titanium in vapor state is penetrated by physical methods onto the substratum and forms a layer, ultra-finished needle is gold-color coated.

It is highly effective in sewing operation for thick leathers as well as tightly woven thick fabrics (e.g. jeans), because of its characteristics such as very high strength, elasticity, wear-resistance, corrosion-resistance etc. However, the high price of Ultra-Finished needle prevent most users from enjoying the advantages of Ultra-Finished needle.



■ Ultra-finished needle

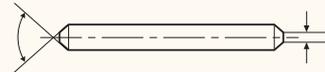


Most sewing machine needles should pass through nearly 40 processes from the cutting of the wire to packaging. The main processes are as follows:



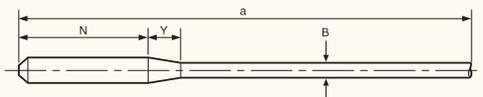
STRAIGHTENING AND CUTTING OPERATION

Straightening the coiled wire and cutting to the required length.



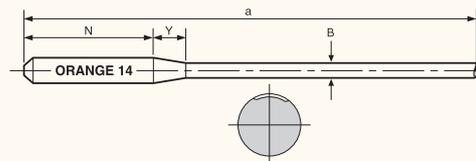
BUTT GRINDING OPERATION

Making the needle-blank uniform in length and also determining the diameter and angle of the butt. It should be 0.40~0.65mm and $118^{\circ} +0^{\circ}, -5^{\circ}$, respectively by grinding.



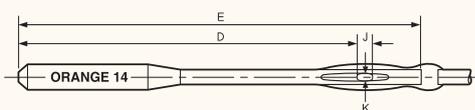
SWAGING OPERATION

Determining by cold forging the dimension of N, B, a, and the length/slope of Y as specified.



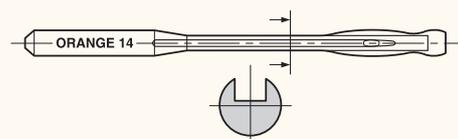
MARKING OPERATION

Marking or imprinting the brand and the needle size number on the needle shank.



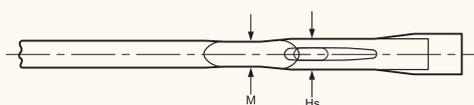
STAMPING & EYEING OPERATION

Determining the dimension of E, D, J, K by stamping and punching.



GROOVE MILLING OPERATION

Milling a groove or two grooves on the needle blade at specified depth, width and length.



FIN (FLASH) GRINDING OPERATION

Grinding the fin out and making Hs, M at the specified dimension.



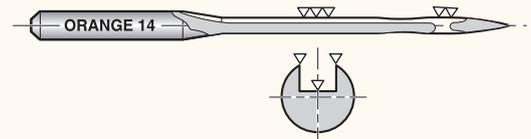
POINTING OPERATION

Making a point without change in the overall length and eccentricity in the longitudinal centerline.



HARDENING, DEEP FREEZING & TEMPERING OPERATION

Making the needle blade have the most optimum hardness, flexibility and toughness through carbon control hardening, deep freezing and exact tempering.



CHEMICAL POLISHING

Removing the burrs resulted from the groove milling and eyeing operation.



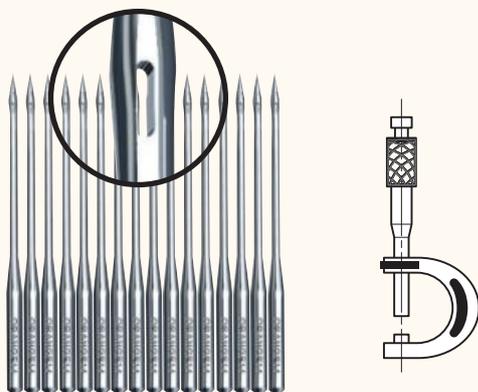
BUFFING OPERATION

Polishing finally the whole surface of the needle for chromium plating.



CHROMIUM ELETROPLATING OPERATION

Giving Giving a heat resistance, wearing resistance, durability, rust preventiveness, erosion proof and better appearance by galvanic deposit of a chromium layer on the needle surface.



FINAL SORTING & INSPECTION OPERATION

To prevent a mingling of even a piece of the needle with inferior quality, the final sorting work is performed on all finished products, and they go through strict sampling inspections to make sure they meet the required standards in every respect.



PACKING IN PLASTIC HOLDER

CONVENIENT STRUCTURE

In terms of packaging, convenience of storage as well as the easy use of the end users was taken into consideration. The re-designed medium plastic container has the following advantages.

- It is very easy for users to uncover the flap.
- The hinge is very strong.
- The design and color is very modern.
- The dimension is smaller than that of former one.



100 X 5 = 500 needles



10 needles



10 X 10 = 100 needles



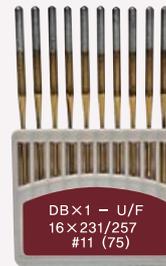
PACKING



PACKING IN PLASTIC HOLDER ULTRA-FINISHED NEEDLES



100 X 5 = 500 needles



10 needles



10 X 10 = 100 needles

SUPER-FINISHED NEEDLES



100 X 5 = 500 needles



10 needles



10 X 10 = 100 needles

SHUTTLE EMBROIDERY NEEDLES



100 X 10 = 1,000 needles

100 needles

COLOR CODE

The color(s) will be painted on tapered blade and on part of the shank (point direction). The color on shank signs **point type** such as regular point (no coating), B ball point (red), TR ball point (yellow), while the color on tapered blade does **needle size** such as 00/75 (green), 0/80 (orange), 1/90 (blue), 2/100 (purple), 3/110 (yellow), 4/130 (red), and 5/140 (black). Our color code is same as that of Swiss embroidery machine makers. Color code can prevent even unskilled workers in embroidery factories from inserting wrongly chosen needles to the machines or from mixing them in custody boxes.

Color by ball shapes	
B	TR
	
RED	YELLOW

Color per size						
00	0	1	2	3	4	5
						
GREEN	ORANGE	BLUE	PURPLE	YELLOW	RED	BLACK





PACKING



PACKING IN PAPER ENVELOPE



100 X 5 = 500 needles



10 needles



10 X 10 = 100 needles

Small, Strong & Global



Orange

Orange



TAEWON NEEDLE Ltd.

20, Geumgang-ro 62beon-gil, Dongnae-gu,
Busan, 47715, Republic of Korea
TEL : (82-51)558-1912 FAX : (82-51)555-3561
E-mail : orange@orangeneedles.com