

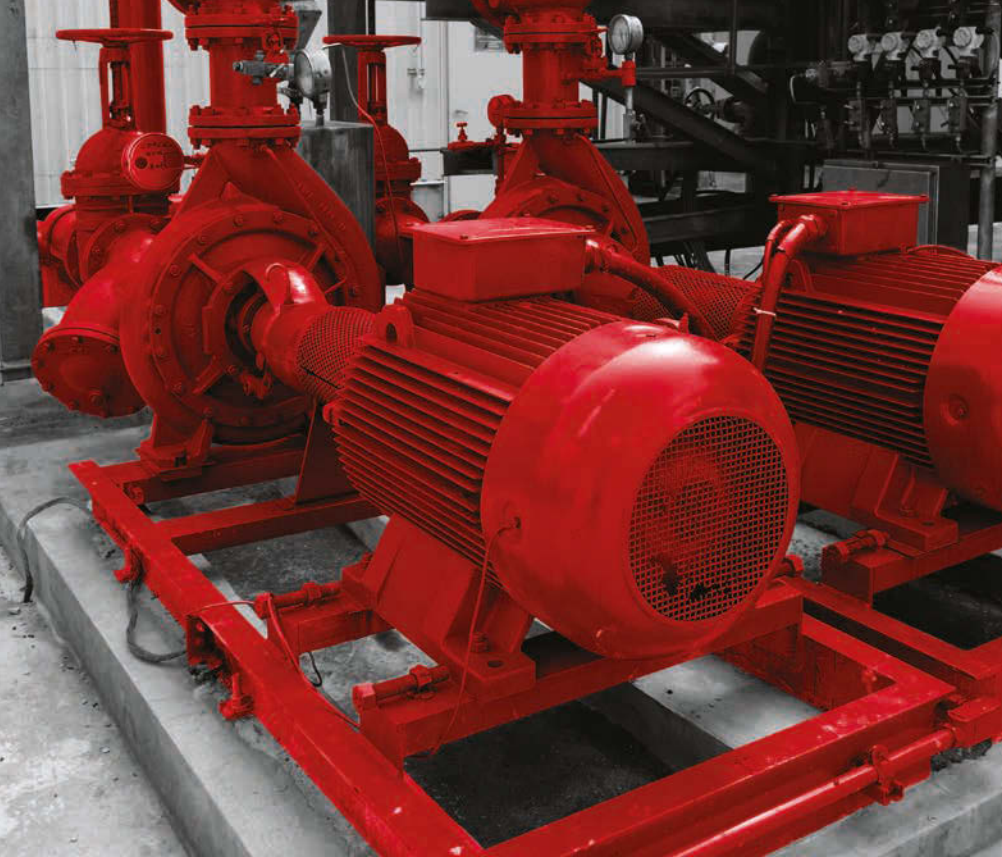


HIGH CAPACITY ANGULAR CONTACT BALL BEARINGS

FEATURING NSKHPS HIGH PERFORMANCE SERIES



STAY IN MOTION. STAY IN CONTROL.



HIGH CAPACITY SINGLE-ROW ANGULAR CONTACT BALL BEARINGS

NSK high capacity angular contact ball bearings are designed to operate under high loads, at high speeds, with accuracy, in mission-critical machinery and equipment.

In API pumps for petroleum and chemical industries. ANSI pumps in pulp and paper production. In screw compressors, fans and blowers supplying air, gas and refrigerant to production processes in a wide range of industries.

Unexpected component failure in this machinery can bring production to a standstill. At a significant cost.

Reliability is paramount.

With a lineup that is designed to accommodate diverse operating stresses and increasing demands on bearing performance, NSK high capacity angular contact ball bearings optimize machine performance, deliver predictable reliability and promote total cost-efficiency.

HIGH PERFORMANCE COMES STANDARD – NSKHPS SERIES

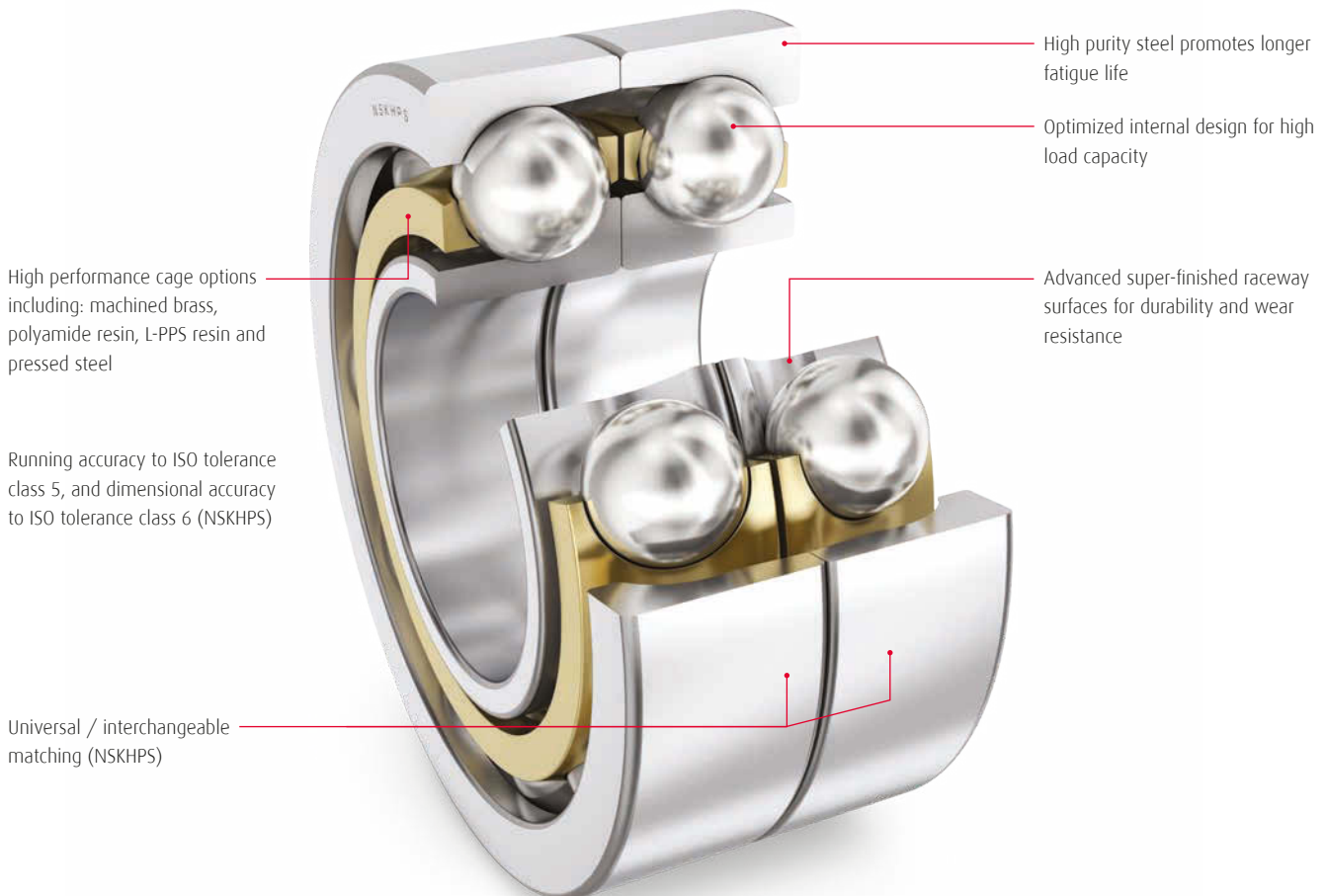
With our NSKHPS series high capacity angular contact ball bearings, NSK delivers a high performance standard engineered to exceed the demands of their industrial applications. Through proprietary materials, optimized design and applied precision manufacturing technologies, our NSKHPS series contributes to highly efficient machine and equipment performance with:

- › Increased load capacity derived from optimized internal design
- › Bearing fatigue life increased as much as 90%
- › Higher limiting speeds, increased by 15-20%
- › Highly accurate axial positioning achieved with high precision tolerances and standard universal arrangement
- › Reduced heat generation, vibration and noise



DESIGN FEATURES AND OPERATING ADVANTAGES

NSK High Capacity Angular Contact Ball Bearings have an optimized internal design that delivers significantly higher load carrying capabilities. Under conventional application conditions this translates into longer operating life with reduced maintenance intervals, but also facilitates downsizing the design envelope for certain applications.



DESIGN FEATURES

- › Optimized internal design delivers high capacity and high speed performance
- › Cage material options suited to a wide variety of applications
- › Available in dimensional series 72 and 73 for bore diameters from 12 to 120 mm
- › NSKHPS series available from 12 to 80 mm
- › Running accuracy to ISO tolerance class 5, and dimensional accuracy to ISO tolerance class 6 (NSKHPS)
- › Universal / interchangeable matching, ensuring highly accurate positioning (NSKHPS)
- › Narrow axial clearance / preload range (NSKHPS)
- › With 40° contact angle

HIGH PERFORMANCE CAGE OPTIONS



Cage selection can have a significant impact on rolling bearing performance. Operating stresses inherent to the application should be carefully considered. For high capacity angular contact ball bearings, NSK offers cage material options suited to a wide array of applications.

Machined Brass Cage (MR)

- › Heavy-duty design, well suited to high loads in chemical, petroleum, pulp and paper applications (API, ANSI)
- › Optimal internal geometry achieved with ball-guided design promotes improved lubricant flow and reduced heat generation during operation

Polyamide Resin Cage (T85)

- › Well suited to standard duty, high speed applications
- › For operating temperatures ranging from -40 to 120°C

L-PPS Resin Cage (T7)

- › Ideally developed for screw compressor applications
- › Exceptional resistance to oil and chemicals
- › Dimensional stability at temperatures as high as 200°C



Machined brass cage



Polyamide resin cage



L-PPS resin cage

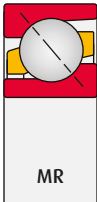
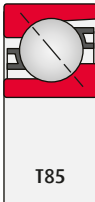
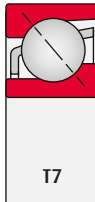
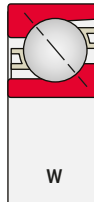


Pressed steel cage

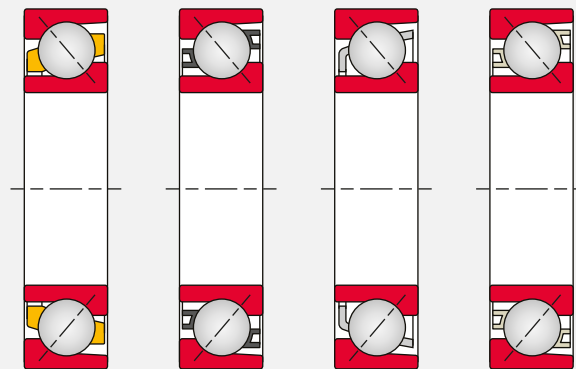
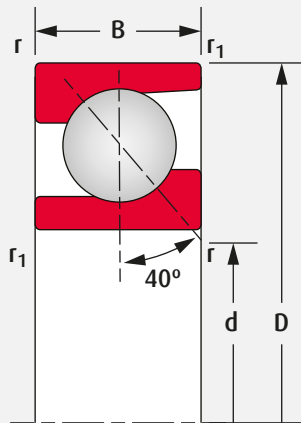
Pressed Steel Cage (W)

- › High-strength pressed steel design, suitable for medium to high loads and high speeds

RANGE OF AVAILABILITY - CAGE TYPE

BEARING CAGE TYPE					Machined Brass	Polyamide Resin	L-PPS resin	Pressed Steel
				Series	MR	T85	T7	W
MR	T85	T7	W	72 NSKHPS	06 to 16	01 to 16	03 to 16	--
				72	17 to 24	17 to 24	17 to 24	--
				73 NSKHPS	04 to 16	01 to 16	03 to 16	--
				73	17 to 24	17 to 24	17 to 24	07 to 16

BEARING DIMENSIONS AND OPERATING VALUES



MR

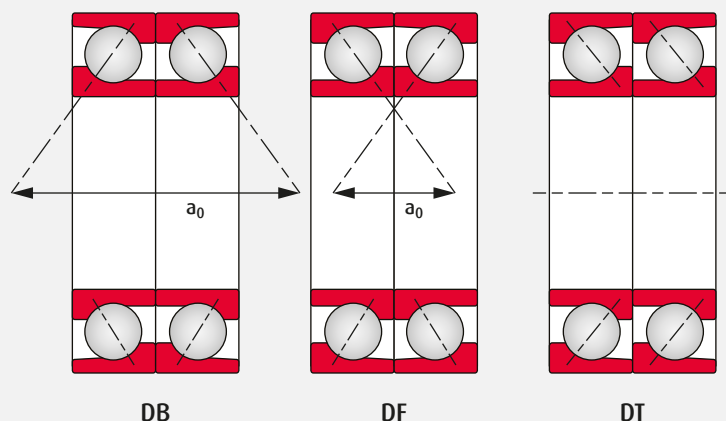
T85

W

T7

BASIC BEARING NO.	Cage				BEARING DIMENSIONS					BASIC LOAD RATINGS		LIMITING SPEEDS	
					mm					kN		rpm	
	MR	T85	T7	W	d	D	B	r (min)	r ₁ (min)	Dynamic	Static	Grease	Oil
* 7201BEA		•			12	32	10	0.6	0.3	8.2	3.8	20 000	30 000
* 7301BEA		•				37	12	1.0	0.6	11.1	5.0	18 000	26 000
* 7202BEA		•			15	35	11	0.6	0.3	9.8	4.8	18 000	26 000
* 7302BEA		•				42	13	1.0	0.6	14.3	6.9	16 000	22 000
* 7203BEA		•	•		17	40	12	0.6	0.3	11.6	6.1	16 000	22 000
* 7303BEA		•	•			47	14	1.0	0.6	16.8	8.3	14 000	20 000
* 7204BEA		•	•		20	47	14	1.0	0.6	15.6	8.2	13 000	19 000
* 7304BEA	•	•	•			52	15	1.1	0.6	19.8	10.5	13 000	18 000
* 7205BEA		•	•		25	52	15	1.0	0.6	17.6	10.2	12 000	17 000
* 7305BEA	•	•	•			62	17	1.1	0.6	27.2	14.9	10 000	15 000
* 7206BEA	•	•	•		30	62	16	1.0	0.6	23.7	14.3	10 000	14 000
* 7306BEA	•	•	•			72	19	1.1	0.6	36.5	20.6	9 000	13 000
* 7207BEA	•	•	•		35	72	17	1.1	0.6	32.5	19.6	8 500	12 000
* 7307BEA	•	•	•			80	21	1.5	1.0	40.5	24.4	8 000	11 000
7307BEAW				•		80	21	1.5	1.0	40.5	24.4	5 600	7 500

* Denotes NSK HPS high capacity series single-row angular contact ball bearings, universally matched, with running accuracy to ISO tolerance class 5 and dimensional accuracy to ISO tolerance class 6
 Bearing types 72/73BEA without asterisk are high capacity single-row angular contact ball bearings, universally matched, with running accuracy P6 and dimensional accuracy P6
 Bearing types 73BEAW are high load capacity angular contact ball bearings with steel cage. Special accuracy and matched sets must be specified with order.

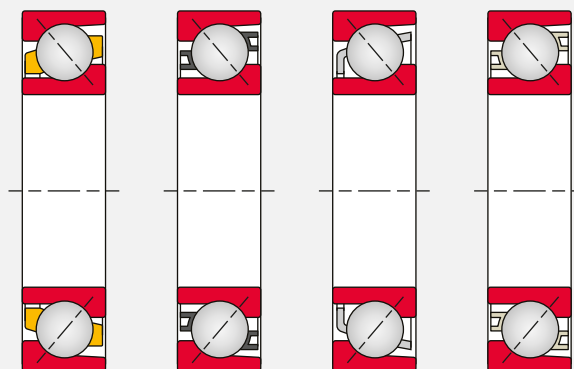
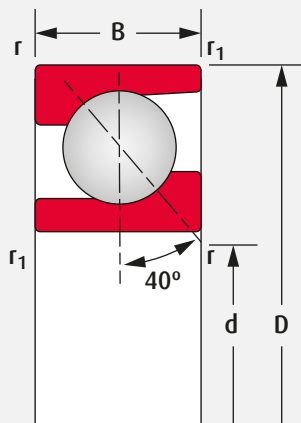


Arr.	Radial/axial loads	Moment loads
DB	both directions	suitable
DF	both directions	less suitable
DT	heavy, one direction	not suitable

Arrangements and moment loads - suitability to accommodate moment loads is determined by the distance between the effective load centers a_0 .

BASIC BEARING NO.	Cage				BEARING DIMENSIONS					BASIC LOAD RATINGS		LIMITING SPEEDS	
					mm					kN		rpm	
	MR	T85	T7	W	d	D	B	r (min)	r _i (min)	Dynamic	Static	Grease	Oil
* 7208BEA	•	•	•		40	80	18	1.1	0.6	38.5	24.5	7 500	11 000
* 7308BEA	•	•	•			90	23	1.5	1.0	53.0	33.0	7 100	10 000
7308BEAW				•		90	23	1.5	1.0	53.0	33.0	5 000	6 700
* 7209BEA	•	•	•		45	85	19	1.1	0.6	40.5	27.1	7 100	10 000
* 7309BEA	•	•	•			100	25	1.5	1.0	62.5	39.5	6 300	9 000
7309BEAW				•		100	25	1.5	1.0	62.5	39.5	4 500	6 000
* 7210BEA	•	•	•		50	90	20	1.1	0.6	42.0	29.7	6 300	9 500
* 7310BEA	•	•	•			110	27	2.0	1.0	78.0	50.5	5 600	8 000
7310BEAW				•		110	27	2.0	1.0	78.0	50.5	4 000	5 600
* 7211BEA	•	•	•		55	100	21	1.5	1.0	51.5	37.0	6 000	8 500
* 7311BEA	•	•	•			120	29	2.0	1.0	89.0	58.5	5 000	7 500
7311BEAW				•		120	29	2.0	1.0	89.0	58.5	3 600	5 000
* 7212BEA	•	•	•		60	110	22	1.5	1.0	61.5	45.0	5 300	7 500
* 7312BEA	•	•	•			130	31	2.1	1.1	102.0	68.5	4 800	6 700
7312BEAW				•		130	31	2.1	1.1	102.0	68.5	3 400	4 500

BEARING DIMENSIONS AND OPERATING VALUES



MR

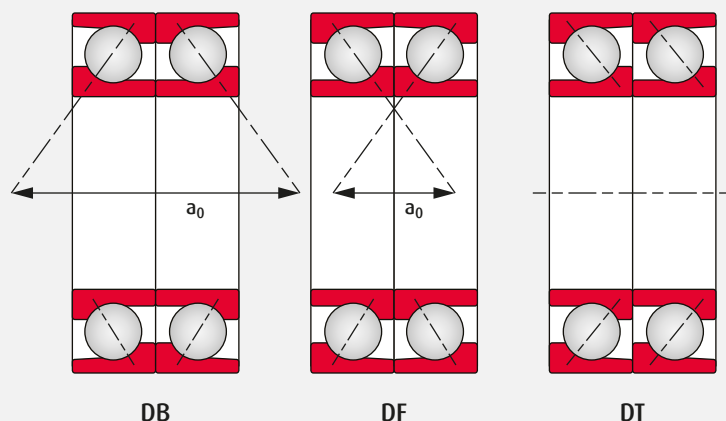
T85

W

T7

BASIC BEARING NO.	Cage				BEARING DIMENSIONS					BASIC LOAD RATINGS		LIMITING SPEEDS	
	MR	T85	T7	W	mm					kN		rpm	
					d	D	B	r (min)	r ₁ (min)	Dynamic	Static	Grease	Oil
* 7213BEA	•	•	•		65	120	23	1.5	1.0	70.0	53.5	4 800	7 100
* 7313BEA	•	•	•			140	33	2.1	1.1	114.0	77.0	4 300	6 300
7313BEAW				•		140	33	2.1	1.1	114.0	77.0	3 200	4 300
* 7214BEA	•	•	•		70	125	24	1.5	1.0	75.5	58.5	4 500	6 700
* 7314BEA	•	•	•			150	35	2.1	1.1	124.0	87.5	4 000	6 000
7314BEAW				•		150	35	2.1	1.1	124.0	87.5	2 800	4 000
* 7215BEA	•	•	•		75	130	25	1.5	1.0	78.5	63.5	4 300	6 300
* 7315BEA	•	•	•			160	37	2.1	1.1	134.0	98.5	3 800	5 600
7315BEAW				•		160	37	2.1	1.1	134.0	98.5	2 800	3 800
* 7216BEA	•	•	•		80	140	26	2.0	1.0	87.5	70.0	4 000	6 000
* 7316BEA	•	•	•			170	39	2.1	1.1	144.0	110.0	3 600	5 300
7316BEAW				•		170	39	2.1	1.1	144.0	110.0	2 600	3 400
7217BEA	•	•	•		85	150	28	2.0	1.0	101.0	81.5	3 800	5 600
7317BEA	•	•	•			180	41	3.0	1.1	164.0	133.0	3 400	5 000

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Arr.	Radial/axial loads	Moment loads
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Arrangements and moment loads - suitability to accommodate moment loads is determined by the distance between the effective load centers a_0 .

BASIC BEARING NO.					BEARING DIMENSIONS					BASIC LOAD RATINGS		LIMITING SPEEDS	
	Cage				mm					kN		rpm	
	MR	T85	T7	W	d	D	B	r (min)	r _i (min)	Dynamic	Static	Grease	Oil
7218BEA	•	•	•		90	160	30	2.0	1.0	115.0	93.5	3 600	5 300
7318BEA	•	•	•			190	43	3.0	1.1	177.0	146.0	3 200	4 500
7219BEA	•	•	•		95	170	32	2.1	1.1	130.0	107.0	3 400	5 000
7319BEA	•	•	•			200	45	3.0	1.1	189.0	160.0	3 000	4 500
7220BEA	•	•	•		100	180	34	2.1	1.1	143.0	122.0	3 200	4 500
7320BEA	•	•	•			215	47	3.0	1.1	212.0	187.0	2 800	4 000
7221BEA	•	•	•		105	190	36	2.1	1.1	155.0	133.0	3 000	4 500
7321BEA	•	•	•			225	49	3.0	1.1	224.0	203.0	2 600	4 000
7222BEA	•	•	•		110	200	38	2.1	1.1	162.0	144.0	2 800	4 300
7322BEA	•	•	•			240	50	3.0	1.1	237.0	226.0	2 600	3 800
7224BEA	•	•	•		120	215	40	2.1	1.1	188.0	177.0	2 600	3 800
7324BEA	•	•	•			260	55	3.0	1.1	249.0	250.0	2 200	3 400

DESIGNATION SYSTEM - AFTERMARKET

HIGH CAPACITY ANGULAR CONTACT BALL BEARINGS

Dimension Series		Contact Angle		Cage Type		Axial Internal Clearance	
73	10	B	EA	MR	SU	CNB	P6
Bore Reference Number		Internal Design		Bearing Arrangement		Tolerance Class	

DESIGNATION	ATTRIBUTE	
Dimensional Series	72	light duty type
	73	medium duty type
Bore Reference Number		multiply x 5 for bore diameter in mm available for bore numbers 01 to 24 (12 mm to 120 mm)
Contact Angle	B	40° contact angle
Internal Design	EA	high capacity design
Cage Type	MR	machined brass
	T85	polyamide resin
	T7	L-PPS resin
	W	pressed steel

DESIGNATION	ATTRIBUTE	
Bearing Arrangement (1)	SU	single universal matching
	DB	duplex, back to back arrangement
	DF	face to face arrangement
	DT	tandem arrangement
Axial Internal Clearance (2)	CNB	standard axial clearance
	GA	light preload
Tolerance Class (3)	P5	ISO tolerance class 5
	P6	ISO tolerance class 6

- 1) Bearing types 72/73BEA with machined brass, polyamid and L-PPS resin cage types are universally matched (SU). For bearing types 73BEAW with pressed steel cages, matched sets (DB, DF, DT) must be specified with order.
- 2) Refer to Matched Measured Axial Clearance table below. Bearing types 73BEAW with pressed steel cages have unique axial clearance and preload specifications - contact NSK.
- 3) For bearing types 73BEAW with pressed steel cages, special precision must be specified with order.

MATCHED MEASURED AXIAL CLEARANCE

BORE DIAMETER		CNB		GA	
mm		µm			
over	including	min	max	min	max
12	18	17	25	-2	6
18	30	20	28		
30	50	24	32		
50	80	29	41	-3	9
80	110	35	47		
110	120	38	50		



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