YUANTONG

Linear Motion Components

Product Catalogue 2026

HG · HGL · MGN · MGW · HGR | Linear guideways, blocks and rails

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The factory behind the part

Shandong Yuantong Industrial Development Co., Ltd. manufactures linear guideways and components at its own plant in Guanxian, Liaocheng, Shandong. Grinding, assembly, preload setting and inspection are done under one roof, so the lead time is ours to control rather than something we wait on.

At a glance

Item	Value
Plant area	200,000 m²
Employees	200+
Product families	HG, HGL, MGN, MGW, HGR rails
Accuracy	C / H / P interchangeable, SP / UP as matched sets
Preload	Z0 / ZA interchangeable, ZB as matched set (HG series)
Rail supply	Cut and drilled from 100 mm, standard lengths held
Management systems	ISO 9001, ISO 14001, ISO 45001

How a guide is made here

Rails are cut square, deburred and drilled on the same set-up so the hole pitch holds along the length. Blocks are assembled and preloaded against their rail when a matched set is ordered, and interchangeable blocks are graded as single parts. Each shipment is quoted against a written configuration — model, accuracy, preload, rail length and hole count — and the packing list repeats those fields, so a part received two years later can be checked against the original order.

Why buyers use us as a second source

- Same mounting dimensions as the HG standard, so an existing drawing carries over.
- Interchangeable blocks up to P / ZA, which keeps spares simple.
- Rail lengths cut to the machine, from 100 mm, with the pattern set on the drawing.
- Technical reply by email or WhatsApp, and a named contact for the account.

Trademark names, where they appear in conversation, are used only to describe mounting compatibility. Yuantong is an independent manufacturer.

Product overview

Five families cover the range. The rail is the same idea throughout; what changes is the block body, the contact geometry and the load the assembly is built to carry.

Family	Type	Sizes	Where it fits
HG (HGH square)	Four-row single-arc ball block	15–65 mm	Machine-tool axes, grinders, heavy gantries
HG (HGW flange)	Flange block, wider bolt pattern	15–65 mm	Thin carriage plates, offset loads
HGL	Low-profile block on the HG rail	15–55 mm	Frames that cannot be raised; retrofits
MGN	Miniature, narrow	7–15 mm	3D printers, laser heads, small slides
MGW	Miniature, wide rail	7–15 mm	Cantilevered heads, single-rail axes
HGR	Rail for the HG family	15–65 mm	Cut to length, drilled to the drawing

How to read the part numbers

HGH20CA: HGH = square heavy-load block, 20 = size in mm, C = heavy-load type, A = top-tapped mounting. HGW25CC: HGW = flange heavy-load block, 25 = size, C = heavy-load type, C = bolted from above and below. MGN12H: MGN = miniature narrow block, 12 = size, H = extended length block (not heavy load).

The miniature series uses C for the standard block and H for the extended block. On the HG series H means the square body, not the extended block. The two conventions do not mix.

HG series — square blocks (HGH)

Square blocks bolt down through the body. The four-row single-arc contact carries load in all four directions, so the block is equally stiff whether the cutting force pushes, pulls or lifts.

Size (mm)	C (kN)	C0 (kN)	H (mm)	W (mm)	L (mm)	Rail
15	11.38	25.31	28	34	61.4	HGR15
20	17.75	37.84	30	44	77.5	HGR20
25	26.48	56.19	40	48	84	HGR25
30	38.74	83.06	45	60	97.4	HGR30
35	49.52	102.87	55	70	112.4	HGR35
45	77.57	155.93	70	86	139.4	HGR45
55	114.44	227.81	80	100	166.7	HGR55
65	163.63	324.71	90	126	200.2	HGR65

Accuracy C / H / P on interchangeable blocks; SP / UP supplied as matched sets. Preload Z0 0–0.02C or ZA 0.05–0.07C on interchangeable blocks; ZB 0.10–0.12C as a matched set. Dust protection ZZ / KK / DD, with heavy-duty wiper codes available on the larger sizes.

Where this block is used

The square block carries load in all four directions and bolts down onto a machined face, so it suits the X, Y and Z axes of machining centres, grinders and gantry frames where the carriage is bolted from above. At 15 to 25 mm it covers compact machine axes and automation carriages; 35 to 65 mm is gantry and press territory, where the carriage is measured in hundreds of kilos.

Options

- Dust protection: standard wipers, or ZZ / KK / DD double and triple seals.
- Heavy-duty wiper codes on the larger sizes for fine abrasive dust.
- Grease nipple or oil port.
- Special machining and non-standard rail lengths on request.

HG series — flange and low profile

HGW flange blocks

The flange body spreads the bolt pattern wider than a square block on the same rail. Use it when the carriage plate is thin, when the load sits away from the rail centreline, or when the frame cannot be raised.

Size (mm)	C (kN)	C0 (kN)	H (mm)	W (mm)	L (mm)
15	11.38	25.31	24	47	61.4
20	17.75	37.84	30	63	77.5
25	26.48	56.19	36	70	84
30	38.74	83.06	42	90	97.4
35	49.52	102.87	48	100	112.4
45	77.57	155.93	60	120	139.4
55	114.44	227.81	70	140	166.7
65	163.63	324.71	90	170	200.2

HGL low-profile blocks

Same rail and hole spacing as the square block, in a lower body. The drop-in choice where the frame height is already fixed by the machine.

Size (mm)	C (kN)	C0 (kN)	H (mm)	W (mm)	L (mm)
15	11.38	25.31	24	34	61.4
25	26.48	56.19	36	48	84
30	38.74	83.06	42	60	97.4
35	49.52	102.87	48	70	112.4
45	77.57	155.93	60	86	139.4
55	114.44	227.81	70	100	166.7

Choosing between square, flange and low profile

Square against flange is decided by the carriage plate: if the bolt holes fall inside the rail footprint, the square block fits; if they fall outside it, the flange is the one the design intended. Low profile is decided by height: when the frame cannot be raised and the square block is too tall, HGL keeps the rail and lowers the carriage. None of the three changes the rail or the hole pitch for a given size.

All three types run on the same HGR rail of that size. Interchangeable blocks up to P / ZA; SP / UP and ZB are matched sets.

Miniature series — MGN and MGW

Miniature guides are chosen for low moving mass and a small envelope: printer gantries, laser heads, dispensing axes and inspection slides. C and H blocks share one rail, so an axis can be rebuilt with more moment capacity without changing the rail or the hole pattern.

MGN — narrow block

Size (mm)	C (kgf / kN)	C0 (kgf / kN)	H (mm)	W (mm)	L (mm)
7	100 kgf (0.98 kN) / 140 kgf (1.37 kN)	127 kgf (1.25 kN) / 200 kgf (1.96 kN)	8	17	22.5 (C) / 30.8 (H)
9	190 kgf (1.86 kN) / 260 kgf (2.55 kN)	260 kgf (2.55 kN) / 410 kgf (4.02 kN)	10	20	28.9 (C) / 39.9 (H)
12	290 kgf (2.84 kN) / 380 kgf (3.73 kN)	400 kgf (3.92 kN) / 600 kgf (5.88 kN)	13	27	34.7 (C) / 45.4 (H)
15	470 kgf (4.61 kN) / 650 kgf (6.37 kN)	570 kgf (5.59 kN) / 930 kgf (9.12 kN)	16	32	42.1 (C) / 58.8 (H)

The printed catalogue for the miniature range is in kgf; the kN figure in brackets is the metric conversion. Preload for the miniature series is not published as a band — quoted as ZF / Z0 / Z1 only.

Where MGN is used

Printer gantries, laser heads, dispensing axes and small pick-and-place slides, where the moving mass has to stay low and the stroke is usually under a metre. C and H blocks share one rail: the H block is longer and carries more moment, so an axis with an overhanging head can move up without changing the rail or the hole pattern.

MGW — wide rail miniature

MGW uses a wider rail at the same size number, which raises resistance to overturning moment when the load hangs off the side of the rail. The height barely changes; the extra width is the whole point.

Size (mm)	C (kgf / kN)	C0 (kgf / kN)	H (mm)	W (mm)	L (mm)
7	140 kgf (1.37 kN) / 180 kgf (1.77 kN)	210 kgf (2.06 kN) / 320 kgf (3.14 kN)	9	25	31.2 (C) / 41 (H)
9	280 kgf (2.75 kN) / 350 kgf (3.43 kN)	420 kgf (4.12 kN) / 600 kgf (5.88 kN)	12	30	39.3 (C) / 50.7 (H)
12	400 kgf (3.92 kN) / 520 kgf (5.10 kN)	570 kgf (5.59 kN) / 840 kgf (8.24 kN)	14	40	46.1 (C) / 60.4 (H)
15	690 kgf (6.77 kN) / 910 kgf (8.92 kN)	940 kgf (9.22 kN) / 1410 kgf (13.83 kN)	16	60	54.8 (C) / 73.8 (H)

Choosing between MGN and MGW

Two MGN rails side by side resist overturning through their spacing; one MGW rail does it through width. If the machine is built in volume, the single wide rail saves alignment time; if weight on the gantry is the limit, two narrow rails are usually lighter.

Clearance to check before the design is fixed

The wider body needs room for the flange ears on both sides, and the rail bolts have to stay reachable with a wrench. On a compact axis this is the detail that sends a design back: the block fits the space in the drawing, but the bolt heads do not. Check the wrench access in the assembly, not just the envelope.

HGR rails

Rails are ordered by size and length. The profile is fixed by the size; the hole pitch and end distance come with it. Every block of that size, square, flange or low profile, runs on the same profile.

Size	Wr	Hr	D	h	d	P	E	kg/m	Std lengths (mm)	Max single
15	15	15	7.5	5.3	4.5	60	20	1.45	160–820	2,000
20	20	17.5	9.5	8.5	6	60	20	2.21	220–1,600	4,000
25	23	22	11	9	7	60	20	3.21	220–1,240	4,000
30	28	26	14	12	9	80	20	4.47	280–3,000	4,000
35	34	29	14	12	9	80	20	6.30	280–3,000	4,000
45	45	38	20	17	14	105	22.5	10.41	570–2,985	3,930
55	53	44	23	20	16	120	30	15.08	on request	4,000
65	63	53	26	22	18	150	35	21.18	on request	4,000

Length and hole count

A rail with n holes is L = (n − 1) × P + 2 × E. Work the length out from the stroke, then round to a hole count. Where two rails are joined, the ends are matched before shipping and the joint position is marked on the drawing.

All dimensions in mm. Wr / Hr = rail width and height, D / h / d = counterbore, depth and bolt hole.

Selection guide

Four questions in a fixed order: what load the carriage carries, how long it has to last, how stiff the axis has to be, and how much space the frame leaves. Asking them out of order is how machines end up over-specified in one place and weak in another.

Machine / axis	Family	Why
Machining centre X/Y/Z	HG (HGH or HGW)	Load in all directions, machined bed, needs stiffness
Grinder, heavy cut	HG, or RG roller where supplied as a set	Deflection has to stay small under the cut
Gantry, long travel	HG 35–65	Higher moment capacity; rail supplied in joined lengths
Retrofit, fixed frame height	HGL	Same rail, lower block
Packaging, high cycle	HG or EG	Service life and easy block replacement
Laser head, fast light axis	MGN or MGW	Low mass, high speed, moment from overhang
Printer gantry	MGN 7–12	Low moving mass; C or H block on the same rail
Cantilevered head, one rail	MGW	Wide rail resists overturning

Sizing rule of thumb

Keep the working load per block under about a third of C. Above that, deflection and life both suffer, and the right answer is usually the next size rather than a higher preload. Preload removes clearance; it does not raise the rated load.

Accuracy and preload

Accuracy grades

Grade	Used for	Supplied as
C	General automation, transfer slides, packaging	Interchangeable block or matched set
H	Machine tools with a machined or scraped bed	Interchangeable block or matched set
P	Machine tools measured against a straight edge	Interchangeable block or matched set
SP	Grinding, measuring machines	Matched block-and-rail set only
UP	Highest grade in the range	Matched block-and-rail set only

Accuracy is position, preload is clearance. A block can be P accuracy and ZA preload, or C accuracy and ZB preload. The grade is measured on the assembled pair, not on the block alone.

Preload, written with the series

Series	Z0	ZA	ZB
HG (HGH / HGW / HGL)	0–0.02C	0.05–0.07C	0.10–0.12C (matched set)
EG	0–0.02C	0.03–0.05C	0.06–0.08C (matched set)
MGN / MGW	ZF / Z0 / Z1	range not published	range not published

The same letter is a different force in each series. Quote it with the series and the band: ZA (HG, 0.05–0.07C), ZA (EG, 0.03–0.05C). The miniature range is catalogued as ZF / Z0 / Z1 without published bands; we confirm the figure with the technical team rather than estimate it.

Why the bands are different

Preload is expressed as a fraction of the rated dynamic load C of the size, and the geometry that produces C is not the same between families. The EG uses a lighter preload set because its two-point arc contact would otherwise run hot at speed; the HG uses a heavier set because it is built for stiffness under a cutting load. Quoting a bare grade transfers the letter but not the force, and a block fitted to the wrong band either runs loose or overheats.

Packing, documents and lead time

Packing

Blocks are packed in individual boxes with the ball keeper fitted. Rails travel in wooden cases, each rail wrapped and fixed so it cannot slide against another; long rails are supported at intervals rather than hung at the ends. Case markings repeat the model, the length and the hole count, so a case can be matched to a machine without opening all of them.

Documents

- Packing list with model, accuracy, preload, rail length and hole count.
- Commercial invoice and packing list for customs.
- Dimensional drawing for the ordered configuration on request.
- Certificates for the management systems on request.

Lead time

Lead time is stated per line on the quotation, because it depends on the grade, the preload and whether the rail is cut to a drawing. Standard sizes are held; matched sets and custom rail lengths are made to order. We do not publish a single lead-time figure that pretends every configuration is the same.

Ordering a replacement

Send the model from the old block and the length of the old rail. A replacement block is a drop-in up to accuracy P and preload ZA; SP / UP and ZB are lapped as a pair and have to be ordered with the rail.

Contact

Quotations are made against the exact configuration: model, quantity, accuracy, preload, and for rails the length and hole count. Send the four fields and the answer comes back with the price and the lead time for that combination.

Channel	Detail
Email	jimmy@ytlinear.com
WhatsApp / phone	+86 147 7559 3910
Website	https://ytlinear.com
Replacement lookup	https://ytlinear.com/replace/
Address	East Ring Road, Guanxian, Liaocheng, Shandong, China

Scan to look up a model and see its dimensions.

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