Half-rail guide

HTS _HEPCO_
HTT

Dualvee® single guide wheel

- **Rail HTS**: steel AISI C1042, cold-drawn, untreated, oiled
- **Rail HTS/SS**: stainless steel AISI 400, cold-formed, untreated, oiled
- **Rail HTT**: steel AISI C1042, track hardened to 53 HRc min., polished, oiled
- **Rail HTT/SS**: stainless steel AISI 400, track hardened to 40 HRc min., polished, oiled
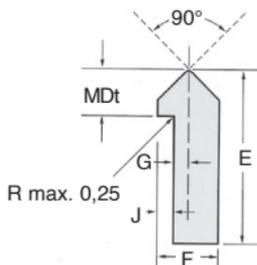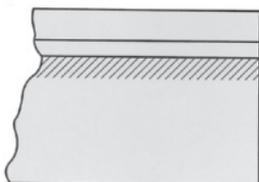- The flat part under the flange is not hardened, to allow mounting holes to be drilled.

Option

- Max. length 6096mm
  (except **HTT-4/SS** : 5790mm)

Typical application

R max. 0,25

90°

MDt

G | E

J

F

DISCOUNTS

Qty	1+	2+	4+
Disc.	List	-15%	On request

Part number	E	Standard length (mm)	F	G	J	MDt	Weight (kg/m)	Stock*	Price each
Steel									
HTS-1	11,09	1000	4,74	0,78	1,57	3,17	0,272	-	61,08 €
HTS-2	15,87	1000	6,35	0,78	2,36	4,75	0,509	-	101,71 €
HTS-3	22,22	1000	8,71	1,57	2,76	6,35	1,020	-	206,75 €
HTS-4	26,97	1000	11,09	2,36	3,17	7,92	1,630	-	344,16 €
Stainless steel									
HTS-1/SS	11,09	1000	4,74	0,78	1,57	3,17	0,272	-	121,75 €
HTS-2/SS	15,87	1000	6,35	0,78	2,36	4,75	0,509	-	203,23 €
HTS-3/SS	22,22	1000	8,71	1,57	2,76	6,35	1,020	-	412,94 €
HTS-4/SS	26,97	1000	11,09	2,36	3,17	7,92	1,630	-	686,97 €
Treated steel									
HTT-1	11,09	1000	4,74	0,78	1,57	3,17	0,272	-	122,25 €
HTT-2	15,87	1000	6,35	0,78	2,36	4,75	0,509	-	180,10 €
HTT-3	22,22	1000	8,71	1,57	2,76	6,35	1,020	-	316,13 €
HTT-4	26,97	1000	11,09	2,36	3,17	7,92	1,630	-	474,76 €
Treated stainless steel									
HTT-1/SS	11,09	1000	4,74	0,78	1,57	3,17	0,272	-	244,86 €
HTT-2/SS	15,87	1000	6,35	0,78	2,36	4,75	0,509	-	357,89 €
HTT-3/SS	22,22	1000	8,71	1,57	2,76	6,35	1,020	-	631,79 €
HTT-4/SS	26,97	1000	11,09	2,36	3,17	7,92	1,630	-	948,63 €

*Depending on availability - Dimensions in mm

Aci ★★★★

Dualvee® single guide wheel

HEPCO **HW**

- Pre-lubricated bearings with 2 rows of balls Angular contact,
  External surface ground and lightly lubricated,
  Tolerances ABEC - 1
- **HW-X**: steel SAE 52100, hardened 60-62 HRc,
  rubber joints
- **HW-X/SS**: stainless steel AISI 440C,
  hardened 58-60 HRc, rubber joints

Working life
- Loads are calculated for an operational life of 2,500 hours
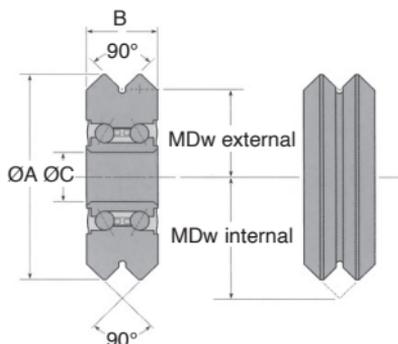- Service factor: divide the accepted load by the appropriate
  service factor
  FS =0.5. Occasional use, no shocks, well lubricated
  FS=1.0. Normal operation, lightly lubricated
  FS=2.0. Subject to shocks, no lubrication or with
  dust present

Typical application

DISCOUNTS

Qty	1+	4+	8+
Disc.	List	-10%	On request

Part number	ØA	B	ØC	MDw int.	MDw ext.	at 33 rpm	at 100 rpm	at 500 rpm	at 1000 rpm	Radial static load (kg)	Dynamic axial load (kg)	Stock*	Price each 1 to 3
Steel, rubber joints													
HW-1X	19,55	7,87	4,76	7,92	11,86	156	108	63	49	112	17	-	99,55 €
HW-2X	30,73	11,09	9,52	12,70	18,23	317	218	128	101	270	36	✔	112,83 €
HW-3X	45,72	15,87	12,00	19,05	26,97	598	414	243	193	450	54	✔	149,53 €
HW-4X	59,94	19,05	15,01	25,40	34,92	900	623	364	290	702	81	✔	212,71 €
Stainless steel, rubber joints													
HW-1X/SS	19,55	7,87	4,76	7,92	11,86	140	96	56	44	100	15	-	164,28 €
HW-2X/SS	30,73	11,09	9,52	12,70	18,23	252	174	102	81	216	29	-	183,89 €
HW-3X/SS	45,72	15,87	12,00	19,05	26,97	481	333	193	155	362	43	-	266,11 €
HW-4X/SS	59,94	19,05	15,01	25,40	34,92	715	495	290	230	558	64	-	314,55 €

Dimensions in mm: Dynamic radial load (kg) columns — at 33 rpm, at 100 rpm, at 500 rpm, at 1000 rpm; MDw int., MDw ext.

Depending on availability - Dimensions in mm

Half-rail guide

HBM *HEPCO* **Dualvee® support bushes**

- **HBM-X**: Adjustable support bush with eccentric mounting hole. By rotating the bush, any play between the guide wheel and the rail can be eliminated.
- **HBM**: Fixed bush with a concentric mounting hole. They should be mounted on the side carrying most of the load.

Info.

- * fits into the bore of the corresponding wheel
- ** assumes eccentric bush will be mounted in its central position thus allowing adjustment from +X to –X
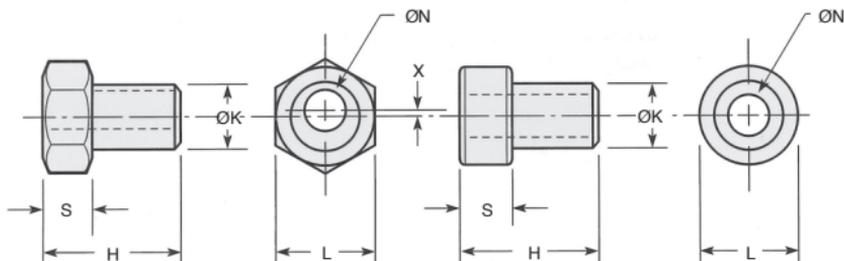
**HBM-X : Adjustable eccentric support bush**   **HBM: Fixed concentric bush**

DISCOUNTS

Qty	1+	4+	8+
Disc.	List	-10%	On request

| Part number | | H | ØK* | L | ØN | For ØM screw | X** | S | Weight (g) | Stock* | Price each 1 to 3 | |
Steel	Stainless										Steel	Stainless
Eccentric support bush												
HBM-1X	HBM-1X/SS	13,97	4,75	11,11	3,6	M3,5	0,30	6,30	5	✔	15,86 €	29,42 €
-	HBM-1-M4X/SS	13,8	4,76	12	4	M4	0,25	6,22	-	-		29,42 €
HBM-2X	HBM-2X/SS	17,93	9,51	14,28	6,1	M6,0	0,60	7,13	11	✔	16,98 €	35,12 €
HBM-3X	HBM-3X/SS	25,14	11,99	19,05	8,1	M8,0	1,06	9,52	26	✔	24,18 €	48,30 €
HBM-4X	HBM-4X/SS	29,90	14,99	22,22	10,1	M10,0	1,52	11,09	45	✔	29,87 €	64,35 €
Concentric support bush												
HBM-1	HBM-1/SS	13,97	4,75	11,11	3,6	M3,5	-	6,30	5	-	8,67 €	14,73 €
-	HBM-1-M4/SS	13,8	4,76	11,2	4	M4	-	6,22	-	-		15,68 €
HBM-2	HBM-2/SS	17,93	9,51	14,28	6,1	M6,0	-	7,13	11	-	9,72 €	19,27 €
HBM-3	HBM-3/SS	25,14	11,99	19,05	8,1	M8,0	-	9,52	26	✔	14,95 €	27,75 €
HBM-4	HBM-4/SS	29,90	14,99	22,22	10,1	10,0	-	11,09	45	✔	18,46 €	43,42 €

Depending on availability - Dimensions in mm

Examples of typical mounting arrangements

HEPCO

Wheel

Rail

Support bushings
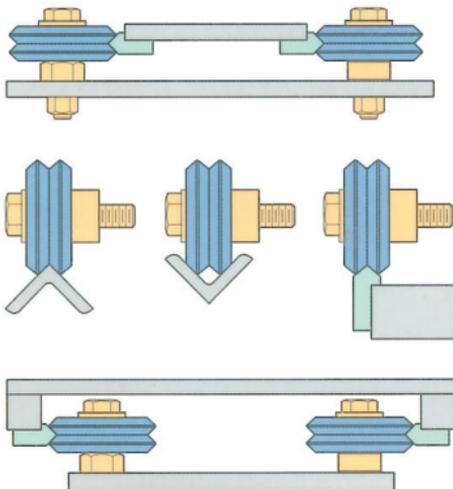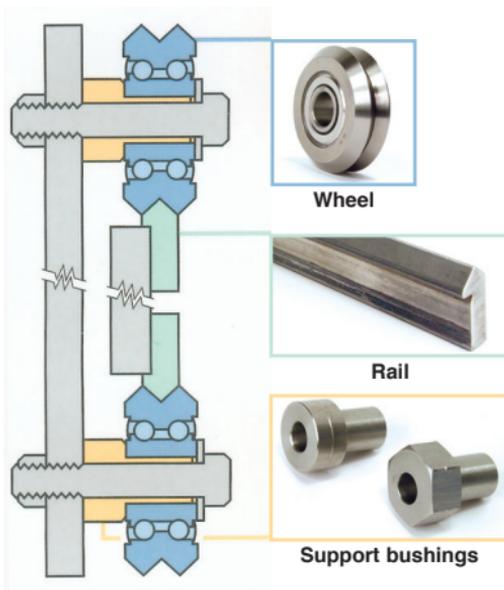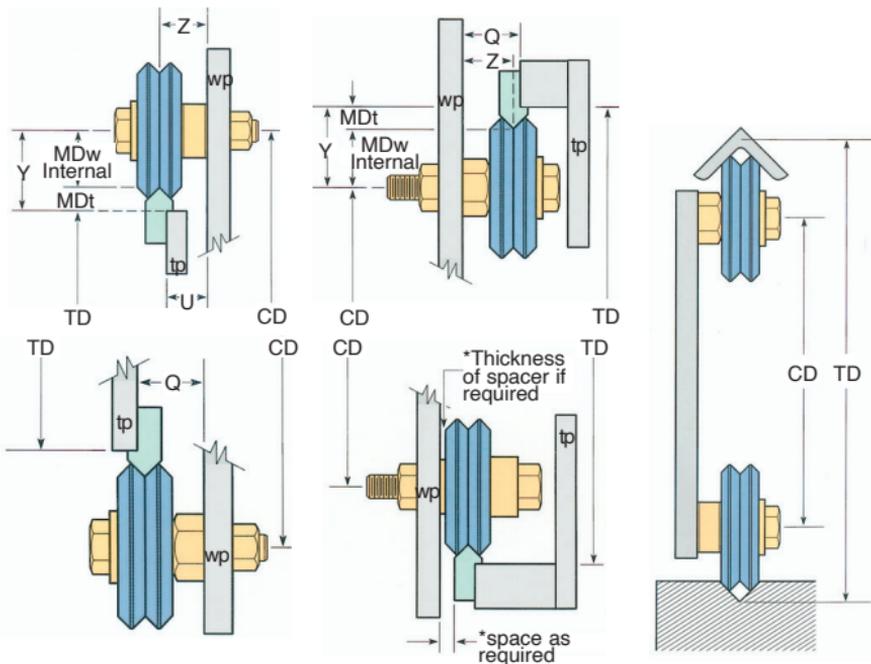
External assembly dimensions
TD + 2Y = CD

Internal mounting formula
TD + 2 Y = CD
Where CD is less than wheel
diameter, guide wheels must
be offset for proper clearance

TD – 2MDw exterior = CD

Legend

- MDw external = Wheel mounting distance based on external V
- MDw internal = Wheel mounting distance based on interior V
- MDt = rail mounting distance
- TD = distance between rails
- CD = centre distance between wheel axles
- Y = MD T + MDw internal
- wp = Wheel plate
- tp = Track plate
- Z = Distance from wp to centre of wheel
- Q = Z + G
- U = Z – G
- G = Distance from tp to centre
  line of rail

	Z	Q	U	Y
Size 1	10,31	11,09	9,52	11,09
Size 2	12,70	13,48	11,91	17,44
Size 3	17,44	19,05	15,87	25,40
Size 4	20,62	23,01	18,26	33,32

HEPCO

Examples

- L = load (kg)
- LR = radial load per wheel (kg)
- LM = axial load per wheel (kg)
- A = dimensions (mm)
- B = dimensions (mm)
- Fs = service factor (see **HW** guide wheel)

Centred axial load

- LM1 = $\frac{L \times B}{A + B}$ x Fs
- LM2 = (L x Fs) - LM1

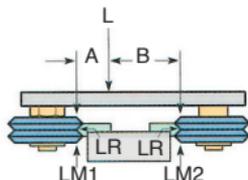**Example** :

L = 22kg, A = 100mm, B = 160mm, Fs = 1 (normal service)

LM1 = $\frac{22 \times 160}{100 + 160}$ x 1 = 13,53kg

LM2 = (22 x 1) - 13,53 = 8,47kg

LR = higher than LM1 or LM2, compare these values to axial and radial capacities of **HW** guide wheels.

Offset loads

- LM1 = $\frac{L \times A}{B}$ x Fs
- LM2 = (L x Fs) + LM1

Example:

L = 22kg, A = 150mm, B = 100mm, Fs = 1 (normal use)

LM1 = $\frac{22 \times 150}{100}$ x 1 = 33kg

LM2 = (22 x 1) + 33 = 55kg
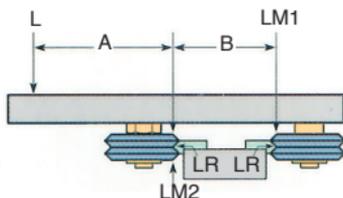
Combined axial and radial loads
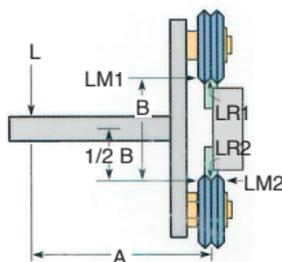
- LM1 = $\frac{L \times A}{B}$ x Fs
- LR1 = (L x Fs) + LM1
- LM1 = LM2

Example:

L = 22kg, A = 150mm, B = 250mm, Fs = 1 (normal service)

LM1 = $\frac{22 \times 150}{250}$ x 1 = 13.2kg

LR1 = (22 x 1) + 13.2 = 35.2kg

*Compare these values to the axial and radial capacities given for HW guide wheels*

Rails and rail supports

1- The straightness, flatness, and parallelism of the rail supports determine the system accuracy. Laminated or cold-drawn material is generally sufficient. A higher accuracy is however obtained by using a support with ground surfaces and edges. The edges receiving the rail must be chamfered by about 0.5mm at 45°, in order to fit with the round-off of the rail flange.

2- For continuous or heavy loads, we recommend you use **HTT** type rails with treated tracks. For prototypes or light and intermittent loads, untreated **HTS** type rails are often sufficient.

3- When constructing track systems longer than 6 metres, the joints on parallel tracks should be staggered for greater accuracy and smoothness.

Lubrication

4- As the wheel circumference is greater on the external diameter than on the internal diameter, this results in the wheel wiping the rail, which produces a self cleaning effect. We recommend you apply a film of grease, which will increase the working life of both wheels and rails.
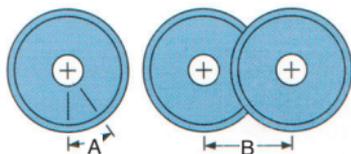
Assembly and wheel alignment

5- The (fixed) concentric bushes determine the system alignment. They should be placed on the side with the heaviest load.
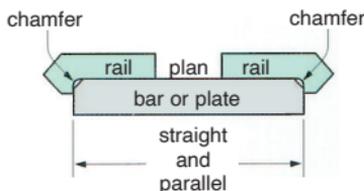
6- A normal adjustment can be obtained by turning the eccentric bushing until the wheel is in contact with the rail and can still turn between the thumb and index finger. If the bushing is screwed too tight, it may exert a pressure on the wheel that exceeds admissible values.

7- We advise you assemble the wheel in such a way that the radial loads are predominant.

8- Do not use half-rail guide based system for applications where a system failure could cause a serious accident or injury.

9- Oscillating motion resulting in less than one full revolution of the wheel under load can cause accelerated wear on the internal bearing elements. The table below indicates the minimum angles of rotation recommended (A) and the corresponding linear displacement (B).

Wheel size	HW-1	HW-2	HW-3	HW-4
A	75°	73°	75°	69°
B	10,41	16,25	25,14	30,48