



This data sheet interacts with
HDS2 Catalogue
 14, 15, 35

HDS2 ESR Slide Rack & Pinion

As part of HepcoMotion's continuous process of product development, the HDS2 range has been extended to include a slide with integrated rack with up 4 times the load capacity of the standard HSS 25 R slide.

The HSS 25 ESR V slide is precision machined from high quality steel and is surface hardened to provide excellent load capacity wear resistance^{*1}, and is available in standard lengths of 1932.1 mm^{*2}. Butt jointed slides of unlimited length are also possible, rack tooth and mounting hole positions are optimised to allow for accurate transitions across joints.

Supplied with a Mod 5 rack, precision machined into the rear face of the slide, it has been designed to mount directly to Hepco's range of HDS2 construction beams, these provide ideal solutions for vertical axis applications^{*3}.

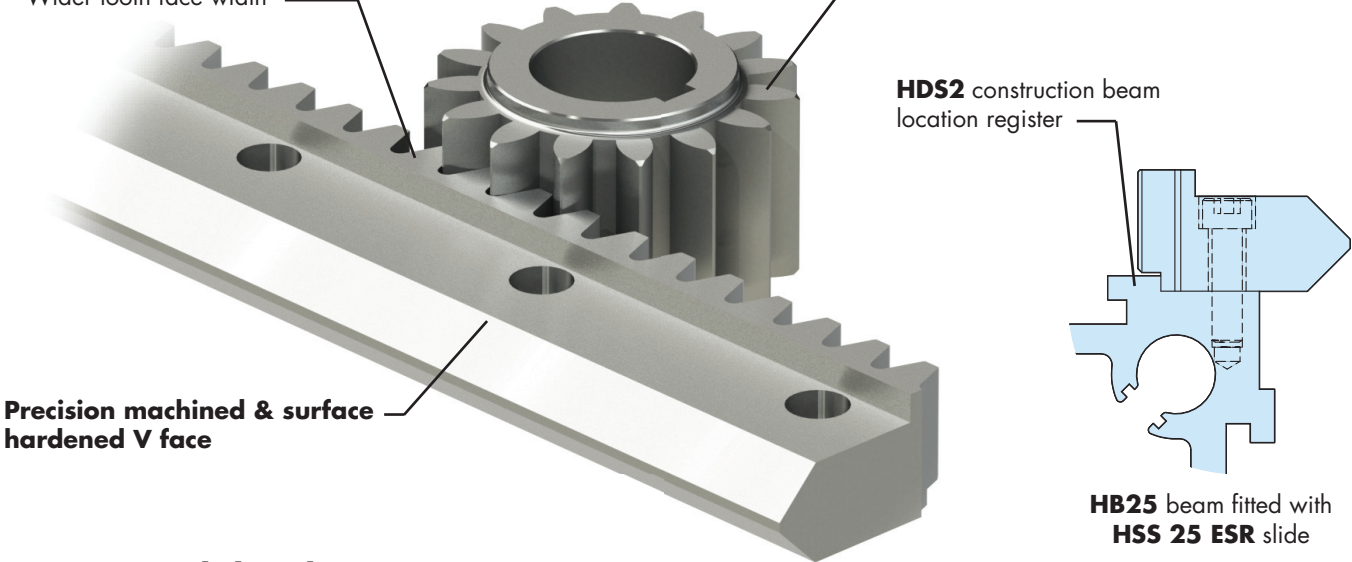
A matching 15 tooth module 5 pinion is also available details on page 2, as well as complete driven carriage options please see www.HepcoMotion.com/HDS2datauk and select datasheet No. 8 Rack Driven Carriages for more details.

Precision machined & surface hardened Mod 5 tooth form

- High load capacity
- Maximum wear resistance
- Wider tooth face width

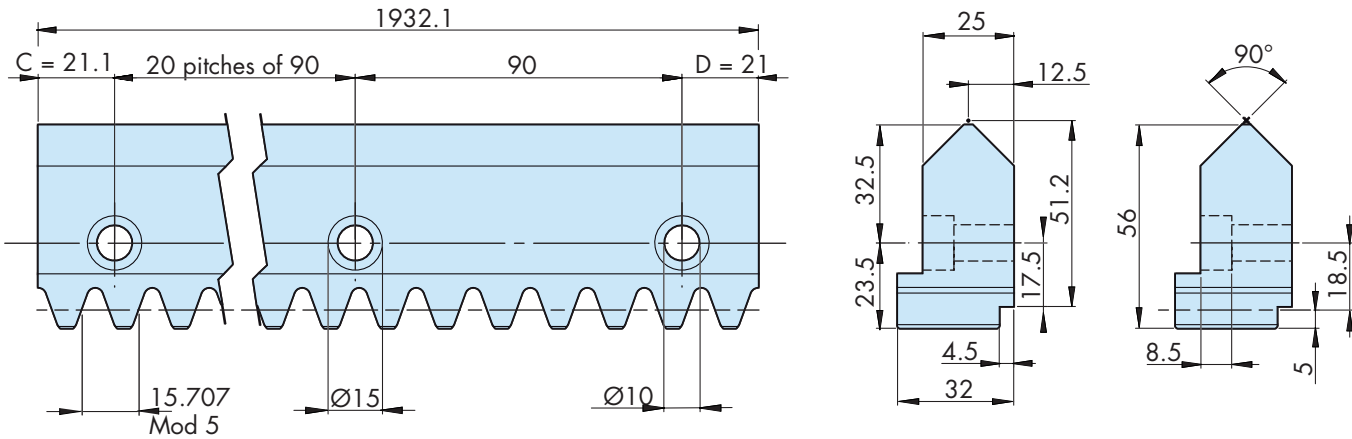
Mod 5 x 15 tooth pinion

- Hardened and ground
- Bored and keyed



Precision machined & surface hardened V face

Dimensional details



- Notes:
- Slide and rack faces must be adequately lubricated to ensure working life, lubrication options are available from Hepco.
 - Slides are available in standard lengths of 1932.1 mm, which is 123 Mod 5 teeth, or cut to customer requirements.
 - Butt jointed slide sets are available on request, hole pitching across the joint will be 42mm, slide are ended at the root of a tooth.
 - HSS25 ESR slide and racks are precision machined.

HSS25 ESR Slide Rack & Pinion

Drive Pinions

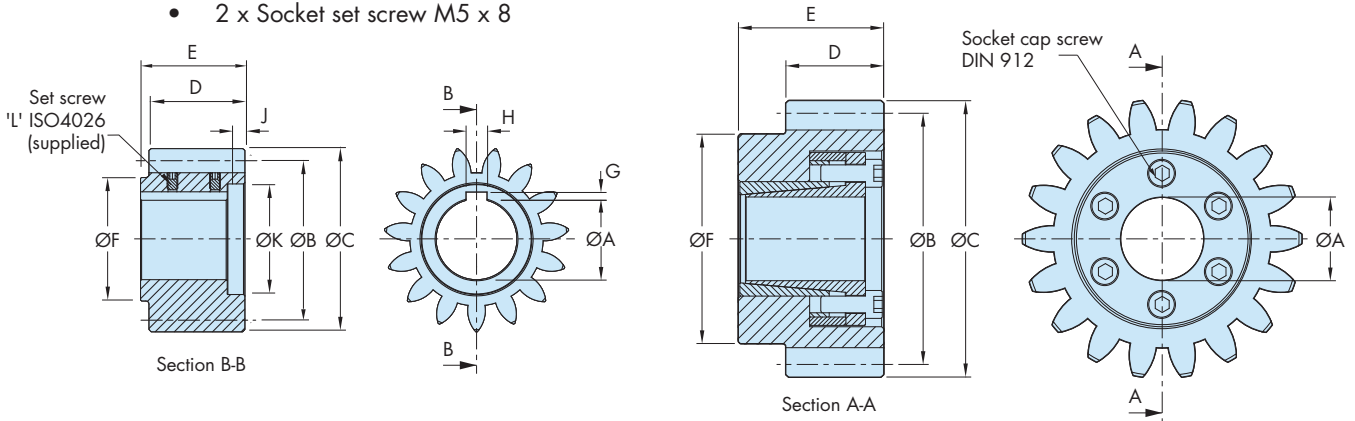
Pinions are made from high grade case hardened steel for maximum wear resistance, and the teeth are precision ground to ISO 1328 grade 6. The HP5X15 pinion is supplied with keyway location, 2 x socket set screws, retaining washer and M12 x 30 countersunk screw to mate with the drive shaft, the larger HP5X18 & HP5X24 pinions incorporate a locking bush which, when tightened, locking onto the drive shaft.

HP5X15 Pinion supplied with -

- Pinion retaining washer
- Countersunk screw M12 x 30
- 2 x Socket set screw M5 x 8

HP5X18 & 24 Pinions supplied with -

- Locking Bush



| Part Number | For use with | No of Teeth | A | B | C | D | E | F | G | H | J | K | L | kg |
|-------------|--------------|-------------|----|-----|------|----|----|-----|-----|----|-----|----|----|-----|
| HP 5 X 15 | HB25C / HB25 | 15 | 38 | 75 | 86.1 | 45 | 49 | 58 | 3.3 | 10 | 8.3 | 52 | M5 | 1.2 |
| HP 5 X 18 | HB25 | 18 | 30 | 90 | 100 | 35 | 52 | 75 | - | - | - | - | - | 1.8 |
| HP 5 X 24 | HB25 | 24 | 40 | 120 | 130 | 35 | 59 | 100 | - | - | - | - | - | 3.6 |

Driving Forces

The driving force which can be transmitted through a rack and pinion will depend on the choice of rack, size of pinion, the length of stroke and desired life (total travel in km). The table below details the driving force in N for a useful range of stroke lengths and design lives.

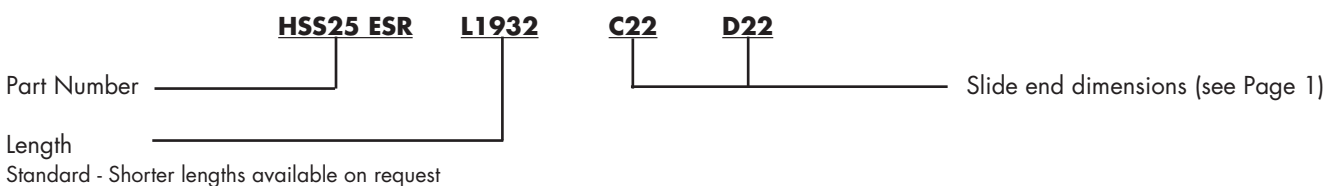
All figures assume ideal lubrication and pinion contact conditions, and that all movement is for the full stroke indicated. It is recommended that a safety factor be applied when specifying HSS 25 ESR slides. This table is suitable for initial selection of parts, but please contact Hepco if you require a specific calculation tailored for you application.

| Rack and Pinion combination | Stroke length = 1m | | | Stroke length = 4m | | | Stroke length = 16m | | |
|-----------------------------|--------------------------------|--------|---------|--------------------------------|--------|---------|--------------------------------|--------|---------|
| | Expected life of rack & pinion | | | Expected life of rack & pinion | | | Expected life of rack & pinion | | |
| | 1000km | 5000km | 25000km | 1000km | 5000km | 25000km | 1000km | 5000km | 25000km |
| Mod 5 x 15 tooth pinion | 8700 | 6700 | 4900 | 10000 | 7700 | 5700 | 10200 | 7800 | 5800 |
| Mod 5 x 18 tooth pinion | 10100 | 8700 | 5700 | 12300 | 10700 | 7000 | 12400 | 10800 | 7000 |
| Mod 5 x 24 tooth pinion | 12100 | 10800 | 7000 | 13500 | 13300 | 8900 | 13600 | 13400 | 9000 |

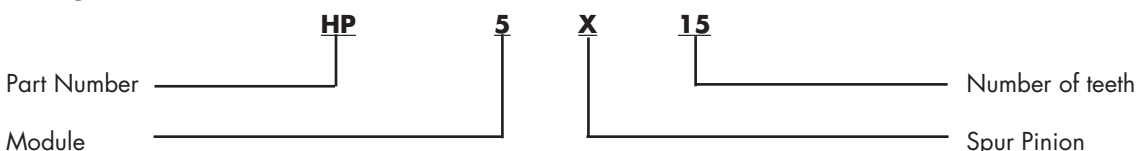
Driving Force in N

Ordering Details

Slide



Pinion



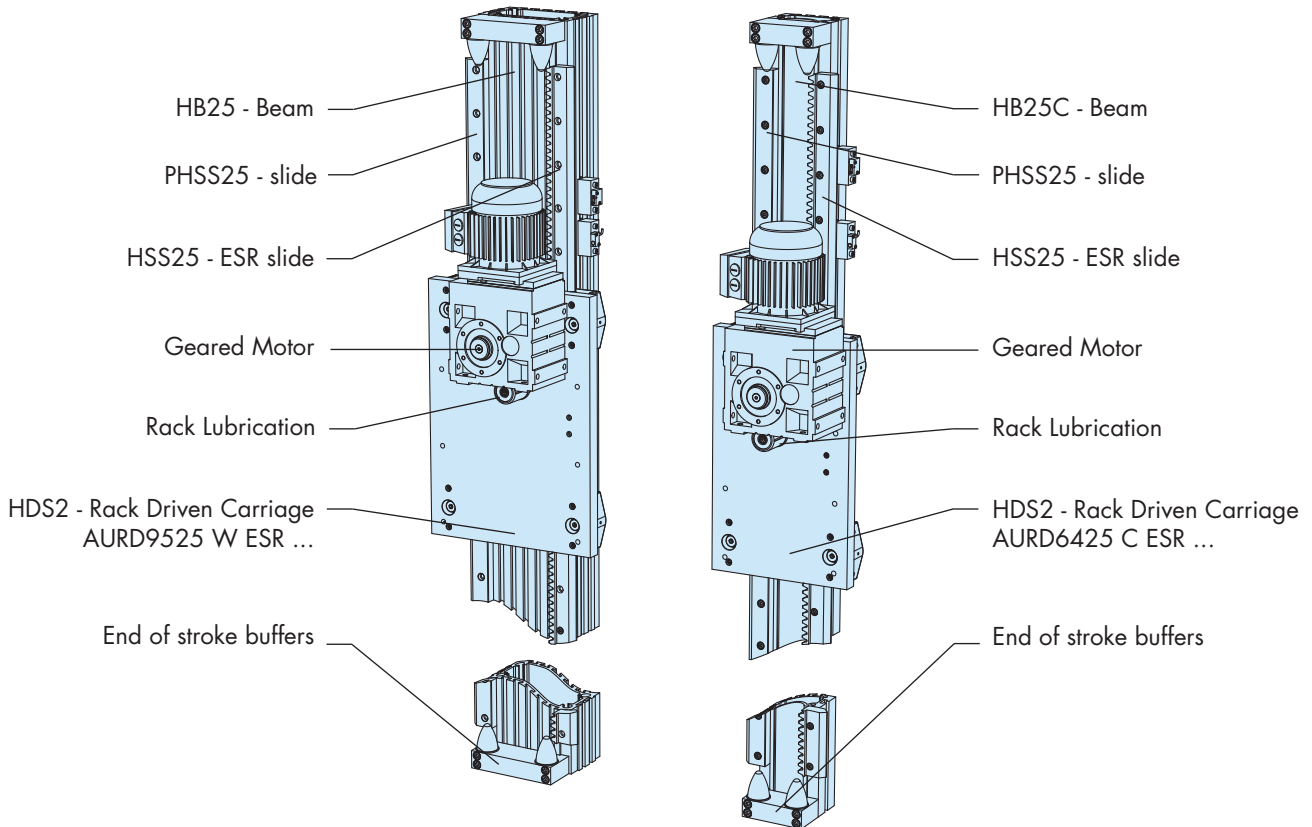
HSS25 ESR Slide System Configurations

The HSS25 ESR single edge slide is designed to transmit high driving forces, due to the hardened module 5 rack, and when combined with HDS2 beams and rack driven carriages assemblies provide an ideal solution for high load Z axis applications.

Based on the flexible HDS2 range the assemblies can be customised to suit specific application requirements. The illustrations below are intended to give an overview of the available options.

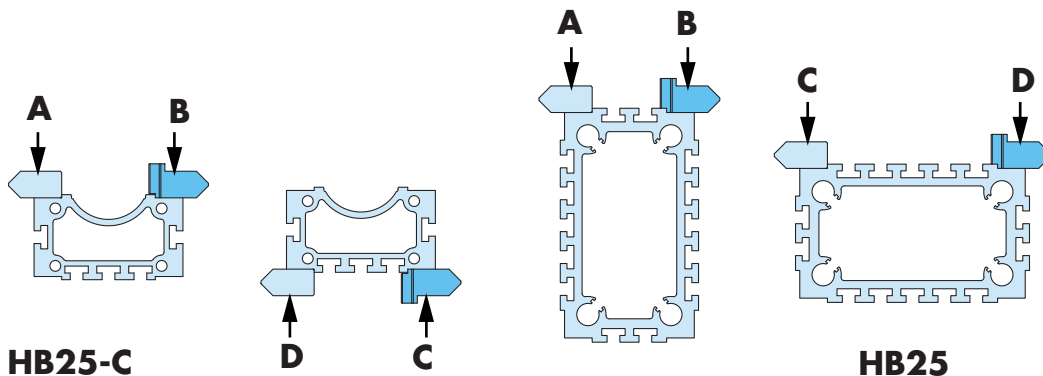
Please refer to Hepco's technical sales team for assistance in specifying the right configuration.

Typical Z axis Configurations

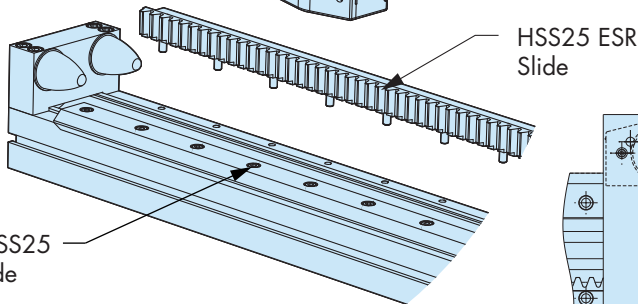
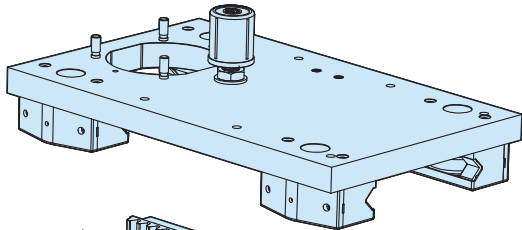
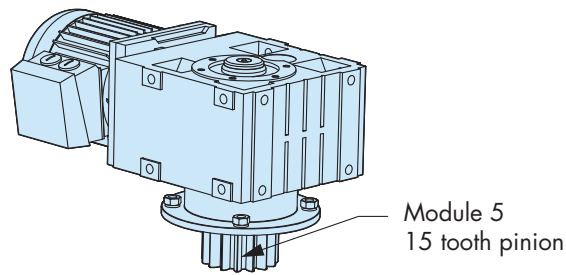


Typical Slide & Beam Configurations

Designed to suit HDS2 beams the HSS25 ESR slide can be fitted directly to the corner mounting positions of the HB25 C and HB25 beams, below are examples of how the slide can be fitted.



HSS25 ESR Slide System Configurations

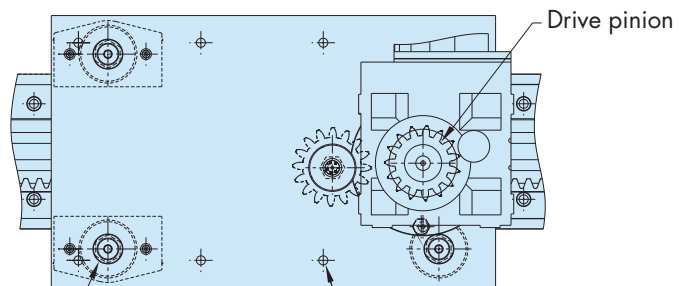


HDS2 ESR rack driven carriage assemblies are available to suit corner mounted slide options for the HB25C & HS25 construction beams.

Carriages can be supplied with all the HDS2 options, including automatic rack lubrication, drive flange assembly and geared motor.

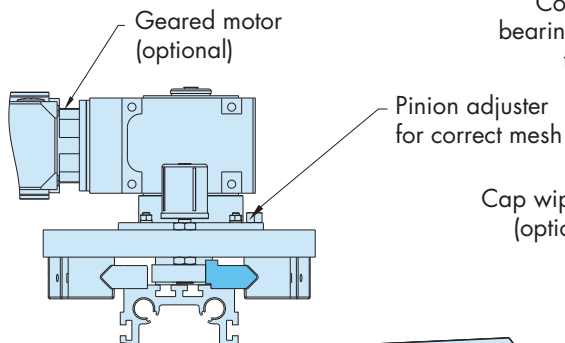
Rack Driven carriage assemblies are available with size $\varnothing 64$, $\varnothing 95$ & $\varnothing 120$ bearings, and can be tailored to suit specific application requirements.

Please contact Hepco's Technical sales team to discuss the application in more detail.



Concentric bearings fitted this side

6 x M10x20 - Customer mounting holes

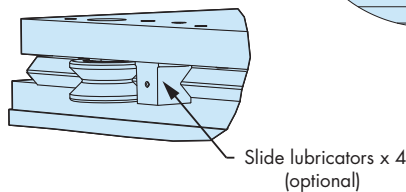


Cap wipers x 4 (optional)

Automatic lubrication unit (optional)

Helical bevel gearbox with hollow shaft

Drive flange



HDS2 ESR slide beams and carriages assemblies are suitable for Z axis applications where lifting forces up to 5000N are required. This integrated and compact beam assembly removes the requirement for separate racks, therefore simplifying the design and reducing system weight and cost.

For more information on the HDS2 range please visit www.HepcoMotion.com/HDS2dataUK, or contact Hepco's Technical Sales Team.

HepcoMotion®, Lower Moor Business Park,
Tiverton Way, Tiverton, Devon, England EX16 6TG

Tel: +44 (0) 1884 257000

Fax: +44 (0) 1884 243500

E-mail: sales@hepcotion.com

www.HepcoMotion.com



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