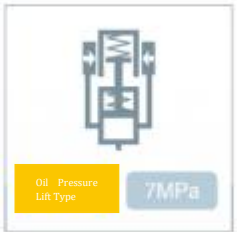


Conical sleeve type workpiece support with greatly improved reliability

Model Representation

HH33 —① ② (Example: HH33-03UL)

①Dimensions (refer to specification sheet)		②Rising spring force	③Special specification mark
HH33	–	02U 03U 05U 07U	L: Standard type H: Strong type	Unmarked: standard type B: air pressure sensor

Specification

Model			HH33-02U	HH33-03U	HH33-05U	HH33-07U
Workpiece support force (when oil pressure is 7Mpa) ※1 (KN)			2.5	3	5	7
Cylinder capacity (cm^3)			0.3	0.7	0.7	1.2
Rising spring force※2	L: Standard type	(N)	2.4~3.1	4~6.3	4~8.8	5.1~8.5
	H: Strong type	(N)	4.2~6.5	6~8.4	7.8~13.4	7.9~13.6
Support plunger stroke		(mm)	6.5	8	8	10
Maximum allowable mass of cap		(kg)	0.05		0.1	0.1
Mass		(kg)	0.2	0.3	0.4	0.7

Operating oil pressure range: 2.5 ~ 7MPa Guaranteed pressure resistance: 10.5MPa Operating ambient temperature: 0-70℃

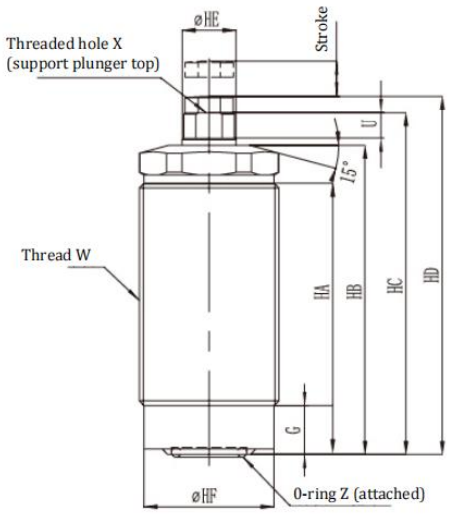
Operating fluid: ordinary mineral oil-based hydraulic oil (equivalent to IS0-VG32)

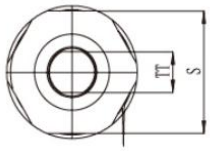
※ 1: When the workpiece support is used opposite to the clamp, in order to make the support force reach more than 1.5 times of (clamping force + cutting load), please select the workpiece support and clamp with matching model.

※ 2: The rising spring force indicates the spring force supporting the rising end and the falling end of the plunger rod.

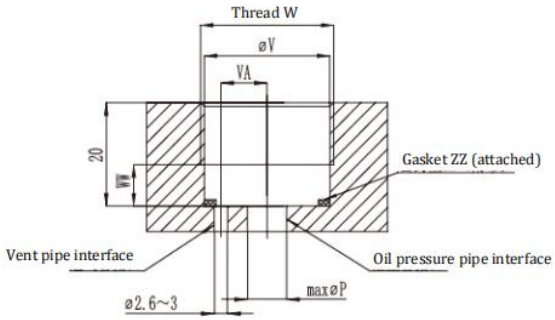
※Due to the inherent structure of 02U, 03U and 05U, the support rod can go down 2mm without pressure at the initial position. This 2mm non-support stroke is an unavailable area (if this area is used as the support stroke, the workpiece may be jacked up, the support force may be insufficient, and the support cylinder may be damaged).

Overall Dimension





Installation hole machining drawing



Model	HH33-02U	HH33-03U	HH33-05U ※3	HH33-07U
HA	50.1	54.1	49.1	59.1
HB	57	62	58	71
HC	63	69	65	78
HD	66	73	69	82
HE	10 f7	12 f7	15 f7	16 f7
HF	$24.2^{0}_{-0.1}$	$28.2^{0}_{-0.1}$	$34.2^{0}_{-0.1}$	$43.2^{0}_{-0.1}$
G	9	9	9	9.5
S	23	27	32	36
TT	8	10	11	11
U	4.7	4	3.6	4.9
V	24.5	28.5	34.5	43.5
VA	9	11	13	16
W (nominal diameter × pitch)	M26×1.5	M30×1.5	M36×1.5	M45×1.5
WW	8	9	9	9
X (nominal diameter × pitch depth)	M6×1 deep 7.5	M8×1.25 deep 8	M10×1.5 deep 10	M10×1.5 deep 10
Z※4	10.82×1.78	12.42×1.78	12.42×1.78	14×1.78
ZZ※4	20×24×1.25	23×28×1.3	28×34×1.25	43×38×1.25
Main body tightening torque	35~45 N·m	40~50 N·m	45~55 N·m	55~65 N·m
Cap tightening torque	10 N·m	20 N·m	30 N·m	30 N·m
Φp	7.5	9	9	9

※ 3: sample size changes when compared with that in the previous period

※ 4: attached O-ring

Note 1. When using bench vise and other tools to fix the hexagon of the main body, please tighten it with a force of less than 2.5kN.

2. This figure shows the state of screwing the cap into the support plunger rod when it is not pressurized.

Oil Pressure (Mpa)	Workpiece Support Force (KN)			
	HH33-02U	HH33-03U	HH33-05U	HH33-07U
2.5	0.85	1.20	1.85	2.68
3.0	1.04	1.44	2.22	3.21
3.5	1.21	1.68	2.59	3.75
4.0	1.38	1.92	2.96	4.28
4.5	1.56	2.16	3.33	4.82
5.0	1.73	2.40	3.70	5.35
5.5	1.90	2.64	4.07	5.89
6.0	2.08	2.88	4.44	6.42
6.5	2.25	3.12	4.81	6.96
7.0	2.40	3.36	5.18	7.49

Load(KN)	Deformation amount (μm) is the unusable range			
	HH33-02U	HH33-03U	HH33-05U	HH33-07U
0	0	0	0	0
1	8.4	6.7	5	3.6
2	16.8	13.3	10	7.1
3		20	15	10.7
4			20	14.3
5				17.9
6				21.4
7				25