Ordering code series CSH2

CS	H2		/		/		/		A	3X	/									Z

Differential cylinder with position measurement system [18] **= CS**

Series **= H2**

Types of mounting

Swivel eye at base	**= MP3**
Self-aligning clevis at base	**= MP5**
Round flange at head	**= MF3**
Round flange at base	**= MF4**
Trunnion [2]	**= MT4**
Foot mounting	**= MS2**

Piston Ø (ØAL) 40 to 320 mm

Piston rod Ø (ØMM) 28 to 220 mm

Stroke length in mm [3]

Design principle

Head and base flanged **= A**

Component series

30 to 39 unchanged installation and connection dimensions **= 3X**

Line connection / version

according to ISO 1179-1 (pipe thread ISO 228-1)	**= B**
according to ISO 9974-1 (metric thread ISO 261) [33]	**= M**
Flange porting pattern according to ISO 6162-1 tab. 2 type 1 (≙ SAE 3000 PSI) [4], [21]	**= F**
Flange porting pattern according to ISO 6162-2 tab. 2 type 1 (≙ SAE 6000 PSI) [4], [9]	**= D**
Flange porting pattern according to ISO 6164 tab.1 [1], [4]	**= K**
Flange porting pattern according to ISO 6164 tab. 2 [4]	**= H**
according to ISO 1179-1 (pipe thread ISO 228-1) with flat pipe flange [31]	**= C**

for directional and high-response valves

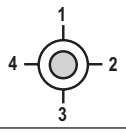
Subplate NG6	[4], [5] **= P**
Subplate NG10	[4; 6] **= T**
Subplate NG16	[4; 7] **= U**
Subplate NG25	[4], [32] **= V**

for SL and SV valves

Subplate NG6	[4], [5], [15] **= A**
Subplate NG10	[4], [6], [15] **= E**
Subplate NG20	[4], [7], [15] **= L**
Subplate NG30	[4], [15], [32] **= N**

Line connection/position at head

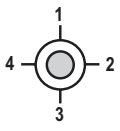
1 = [30]
2 = [30]
3 = [30]
4 = [30]



View to piston rod

Line connection/position at base

1 = [30]
2 = [30]
3 = [30]
4 = [30]



View to piston rod

Piston rod design

C =	Hard chromium-plated
H = [19]	Hardened and hard chromium-plated

Piston rod end

H =	Thread for swivel head CGKD
F =	With mounted swivel head CGKD

End position cushioning

U =	Without
E = [20]	On both sides, adjustable

Seal design

For mineral oil HL, HLP and HFA

M = [29]	Standard seal system
L =	Standard seal system with guide rings
R = [29]	Reduced friction heavy industry

For mineral oil HL, HLP, HFA and water glycol HFC

G = [29]	Standard seal system HFC
T = [29]	Servo quality/reduced friction

For phosphate ester HFD-R and polyol ester HFD-U

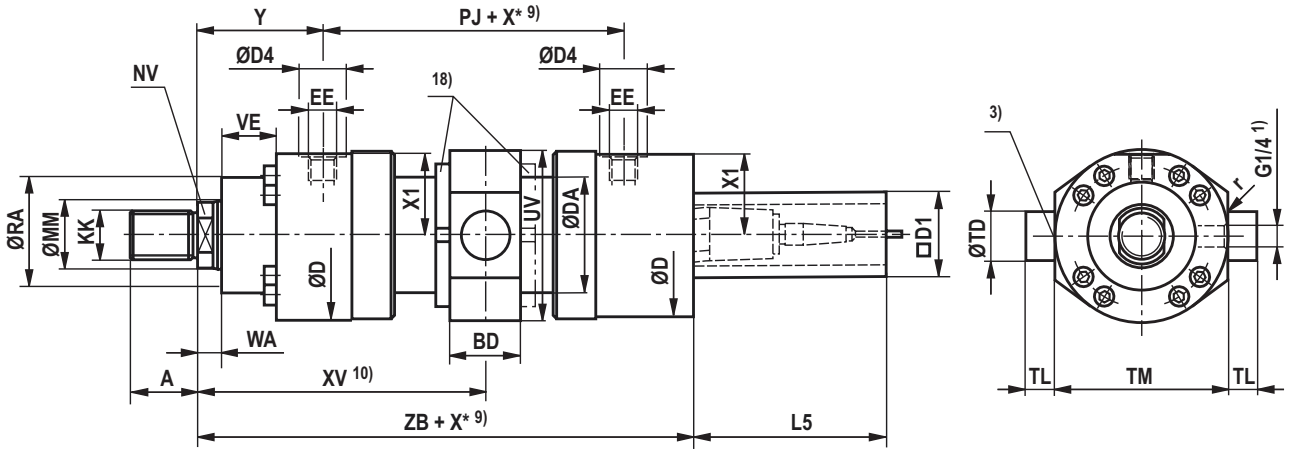
S = [29]	Servo quality/reduced friction
V = [29]	Standard seal system FKM

Option

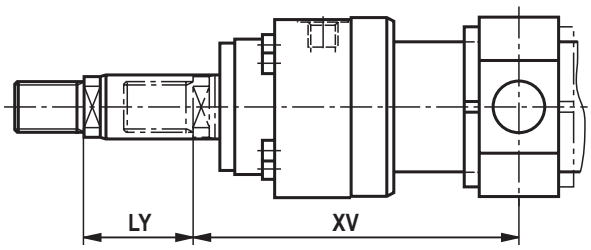
Z = Additional options, fill fields for additional options

Trunnion CSH2: MT4

CSH2 MT4



Dimensions for cylinder with piston rod extension "LY" in retracted condition



Dimensions CSH2: MT4 (dimensions in mm)

ØAL	ØMM	KK	A	NV	ØD	ØDA	ØD4 2)	EE 4; 16)	EE 4; 17)	Y	PJ	X1	WA	X* max	L5	D1 max
40 6)	**28**	M20x1.5	28	22	88	52	34	G1/2	M22x1.5	83	120	41	18	1000	166	80
50	**32/36**	M27x2	36	27/30	102	62	34	G1/2	M22x1.5	98	120	48.5	18	1000	166	96
63	**40/45**	M33x2	45	32/36	120	78	42	G3/4	M27x2	112	133	56.5	21	2000	166	96
80	**50/56**	M42x2	56	41/46	145	95	42	G3/4	M27x2	120	155	69.5	24	2000	166	96
100	**63/70**	M48x2	63	50/60	170	125	47	G1	M33x2	134	171	82	27	3000	166	96
125	**80/90**	M64x3	85	65/75	206	150	47	G1	M33x2	153	205	100.5	31	3000	166	96
140	**90/100**	M72x3	90	75/85	226	170	58	G1 1/4	M42x2	166	219	109.5	31	3000	166	96
160	**100/110**	M80x3	95	85/95	265	190	58	G1 1/4	M42x2	185	235	129.5	35	3000	166	96
180	**110/125**	M90x3	105	95/110	292	210	58	G1 1/4	M42x2	194	264	143.5	40	3000	166	96
200	**125/140**	M100x3	112	110/120	306	235	58	G1 1/4	M42x2	220	278	150.5	40	3000	166	96
220 6)	**140/160**	M125x4	125	120/140	355	273	65	G1 1/2	M48x2 3)	244	326	174	42	3000	166	96
250	**160/180**	M125x4	125	140/160	395	305	65	G1 1/2	M48x2 3)	257	326	194	42	3000	166	96
280 6)	**180/200**	M160x4	160	160/180	445	343	65	G1 1/2	M48x2 3)	290	375	220.5	48	3000	166	96
320	**200/220**	M160x4	160	180/200	490	394	65	G1 1/2	M48x2 3)	282	391	243	48	3000	166	96

ØAL	ØMM	ZB max	X* min	XV 14) cent	XV 12) min	XV 12) max	BD	UV 15)	ØTD f8	TL js16	TM h12	r	ØRA	VE
40 6)	**28**	239	22	143+X*/2	154	140+X*	38	97	25	20	95	0.8	52	29
50	**32/36**	254	32	158+X*/2	174	151+X*	38	111	32	25	112	0.8	63	29
63	**40/45**	299	47	178.5+X*/2	202	167+X*	48	129	40	32	125	1	75	32
80	**50/56**	332.5	58	197.5+X*/2	226.5	180.5+X*	58	163	50	40	150	1	90	36
100	**63/70**	362	79	219.5+X*/2	259	195+X*	78	188	63	50	180	1.2	110	41
125	**80/90**	410	91	255.5+X*/2	301	210+X*	98	234	80	63	224	1.2	132	45
140	**90/100**	440	121	275.5+X*/2	336	215+X*	118	257	90	70	265	1.5	145	45
160	**100/110**	472.5	142	302.5+X*/2	373.5	231.5+X*	128	287	100	80	280	1.5	160	50
180	**110/125**	510	158	326+X*/2	405	247+X*	138	328	110	90	320	1.5	185	55
200	**125/140**	550	204	359+X*/2	461	257+X*	178	343	125	100	335	1.5	200	61
220 6)	**140/160**	637	200	407+X*/2	507	307+X*	180	393	160	125	385	1.5	235	71
250	**160/180**	650	210	420+X*/2	525	315+X*	180	433	160	125	425	1.5	250	71
280 6)	**180/200**	752	241	477.5+X*/2	598	357+X*	220	486	200	160	480	2	295	88
320	**200/220**	760	245	477.5+X*/2	600	355+X*	220	536	200	160	530	2	320	88

ØAL = Piston Ø
ØMM = Piston rod Ø
X* = Stroke length
X*max = Max. stroke length
X*min = Min. stroke length
With hydraulic cylinders with end position cushioning, observe the notice on page 63!

1) Bleeding: With view to the piston rod, the position is offset by 90° in relation to the line connection (clockwise)
2) Ø D4 max. 0.5 mm deep
3) Thread size does not comply with ISO 6022; M50 x 2 available upon request
4) Flange connections see separate table pages 36 and 37
5) Throttle valve only with end position cushioning "E" (180° for bleeding)
6) Piston Ø not standardized
10) Observe the min. stroke length "X*min"
11) Double-acting cylinder not standardized
12) When ordering, always specify the "XV" dimension in the plain text. Preferred XV dimension: Observe the trunnion position in the cylinder center XVmin and XVmax
14) XVcent recommendation: Trunnion position in cylinder center
15) The specified dimensions are maximum values, tolerance classes 342 according to ISO 9013 Thermal cutting
16) Line connection "B" and "C"
17) Line connection "M"
18) Trunnion nut with ØAL ≥ 125 mm either at head or at base side depending on the position of the trunnion (XV)

Important installation information: During installation, it must be ensured that the trunnion bearings are installed up to the trunnion shoulders. Any variation may reduce the product's service life.