

# ISO 15552 CYLINDER WITH END-OF-STROKE STOP



The cylinders in this series are designed with a unit that mechanically locks the piston rod at the end of stroke.

When extended, the piston rod can be locked at the front head; when retracted, it is locked either at the rear head or in both positions.

With the cylinder pneumatically powered, the locking unit releases automatically, so no additional piloting is required.

The locking unit can be released manually by inserting a screw into a thread.

This cylinder complies with ISO 15552, except for the length, which is greater than the standard.



TECHNICAL DATA		Polyurethane	NBR			FKM/FPM	Low Temperature
Max operating pressure	bar						10
	MPa						1
	psi						145
Temperature range	°C	-25 to + 80	-10 to + 80		-10 to + 150	-35 to + 80	
Fluid		Unlubricated air. Lubrication, if used, must be continuous					
Design		Heads with Tap Tite screws					
Standard stroke +	mm	for bores Ø 32 to 63 strokes from 30 to 2800					
		for bores Ø 80 to 100 strokes from 35 to 2600					
Versions		Double-acting cushioned, Through-rod cushioned, No stick-slip.					
Sensor magnet		YES					
Bore	mm	Ø 32	Ø 40	Ø 50	Ø 63	Ø 80	Ø 100
Static retention force	N	500	500	2000	2000	5000	5000
Maximum axial clearance in the lock position	mm	1.5	1.5	1.5	1.5	1.5	1.5
Minimum release pressure	bar	≥ 2.5	≥ 2.5	≥ 2.5	≥ 2.5	≥ 2	≥ 2
Maximum locking pressure	bar	≤ 0.5					
Forces generated at 6 bar thrust/retraction		See cylinder "General technical data" at the beginning of the chapter					
Weights							
Only one stop, with piston rod extended or retracted, stroke = 0	g	573	860	1367	1793	3515	5197
Stops either with piston rod extended or retracted, stroke = 0	g	713	1060	1647	2143	4215	6497
Every mm of stroke, cylinder with piston rod cylinder	g	2.20	2.15	4.57	5.03	7.49	8.79
Every mm of stroke, through-rod cylinder	g	3.09	4.73	7.04	7.44	10.16	12.33
Notes		<b>For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air.</b>					
		+ Maximum recommended strokes. Higher values can create operating problems					

## FUNCTIONING DIAGRAM

### LOCKED VERSION WITH EXTENDED PISTON ROD

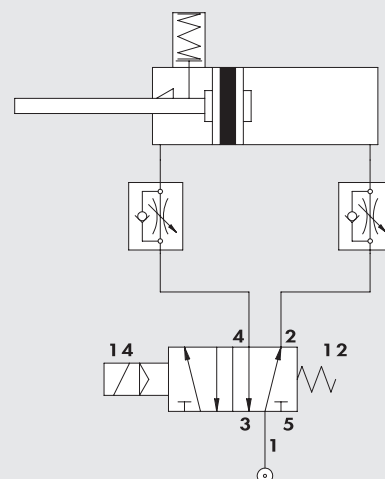
When the piston rod extends at the end of stroke, the spring-actuated locking piston enters the slot of the coupling bushing.

When the piston rod retracts, the pressure inside the front chamber overcomes the force of the spring and causes the locking piston to move away; the piston rod can now move freely and retracts.

**N.B.:** The rear chamber must be pressurized before activating piston rod retraction, otherwise the locking unit will not be disengaged. When the control valve is switched over, by the time the rear chamber relieves, sufficient pressure is created in the front chamber to release the locking unit before the piston rod starts retracting.

The version with locking with piston rod retracted works in the same way.

**Precautions:** Do not use 3-position solenoid valves. Use MRF flow regulators that choke the output (type C). Do not use with multiple cylinders moving in a synchronized sequence. Pneumatic cushioning must be adjusted properly; it must not be closed, neither fully nor partially.

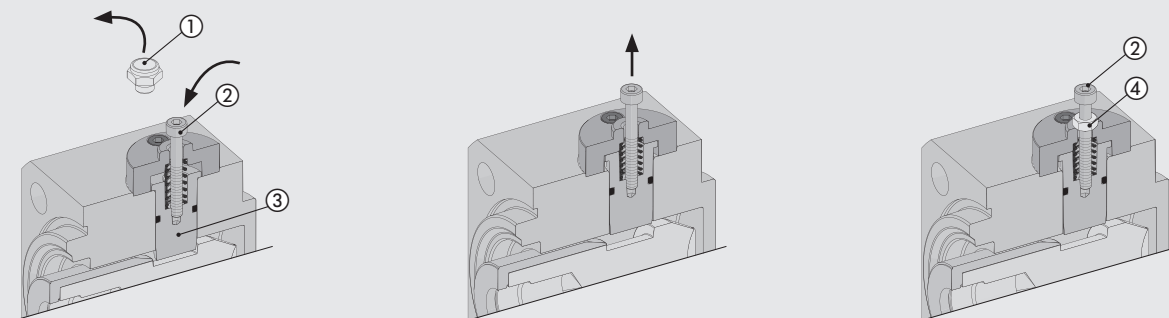


### MANUAL RELEASE (WITH NO PRESSURE)

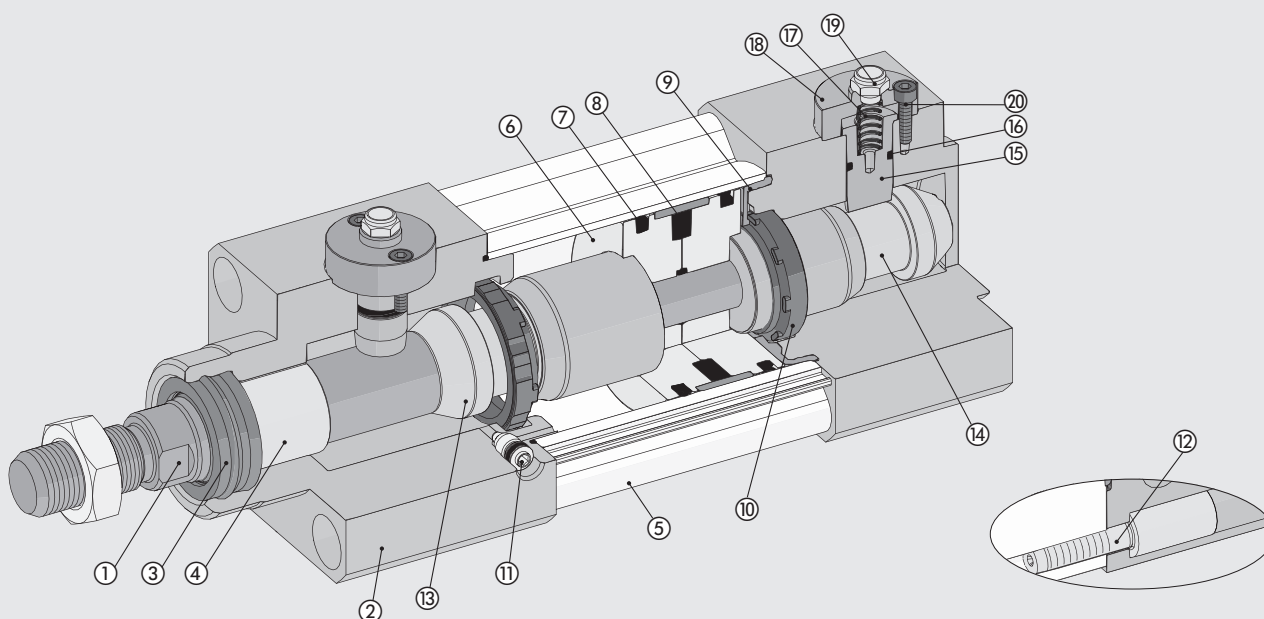
Remove the silencer ①. Tighten one of the screws ② into the locking piston ③.

Pull it upwards to release the locking piston.

You can disengage the locking unit permanently by fitting a nut ④ to the screw ② and tightening it until the piston is disengaged.



### COMPONENTS



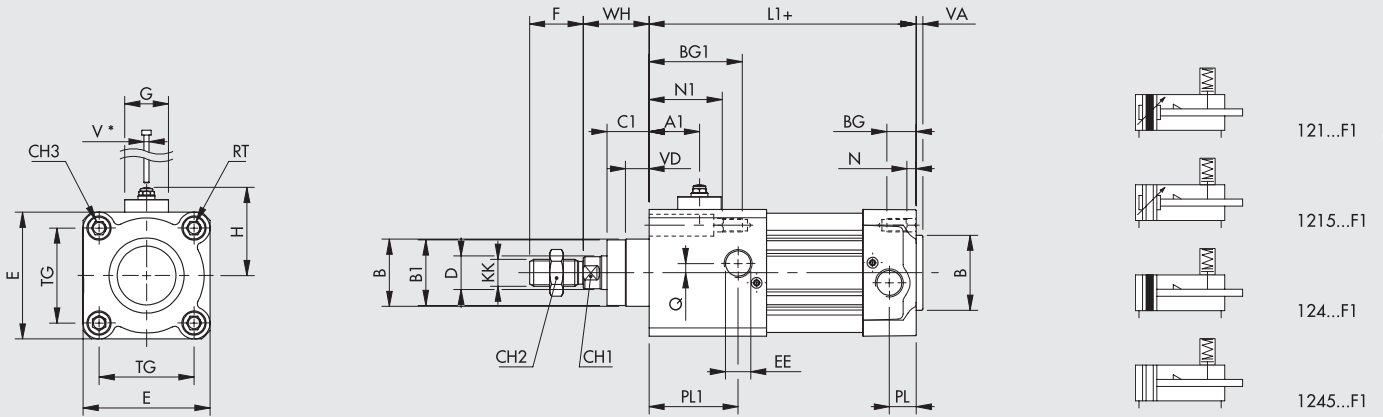
- ① PISTON ROD: C45 steel or stainless steel, thick chromed
- ② HEAD: aluminium
- ③ PISTON ROD GASKET: polyurethane, NBR or FKM/FPM
- ④ GUIDE BUSHING: steel strip with bronze and PTFE insert
- ⑤ BARREL: drawn anodised calibrated aluminium
- ⑥ SEMI-PISTON: made of self-lubricating technopolymer with built-in cushioning olives or in aluminium
- ⑦ PISTON GASKET: polyurethane, NBR or FKM/FPM
- ⑧ MAGNET: plastoferrite
- ⑨ BUFFER + Static O-rings: NBR or FKM/FPM
- ⑩ CUSHIONING GASKET: polyurethane, NBR or FKM/FPM

- ⑪ CUSHIONING NEEDLE: OT 58 with needle out movement safety system even when fully open
- ⑫ SCREWS: Tap Tite for assembly
- ⑬ FRONT COUPLING BUSHING: hardened alloy steel
- ⑭ REAR COUPLING BUSHING: hardened alloy steel
- ⑮ LOCKING PISTON: tempered and chromed alloy steel
- ⑯ GASKET: NBR or FKM/FPM
- ⑰ SPRING: stainless steel
- ⑱ COVER: anodised aluminium
- ⑲ SILENCER: nickel-plated brass with stainless steel wire
- ⑳ SCREWS: zinc-plated steel

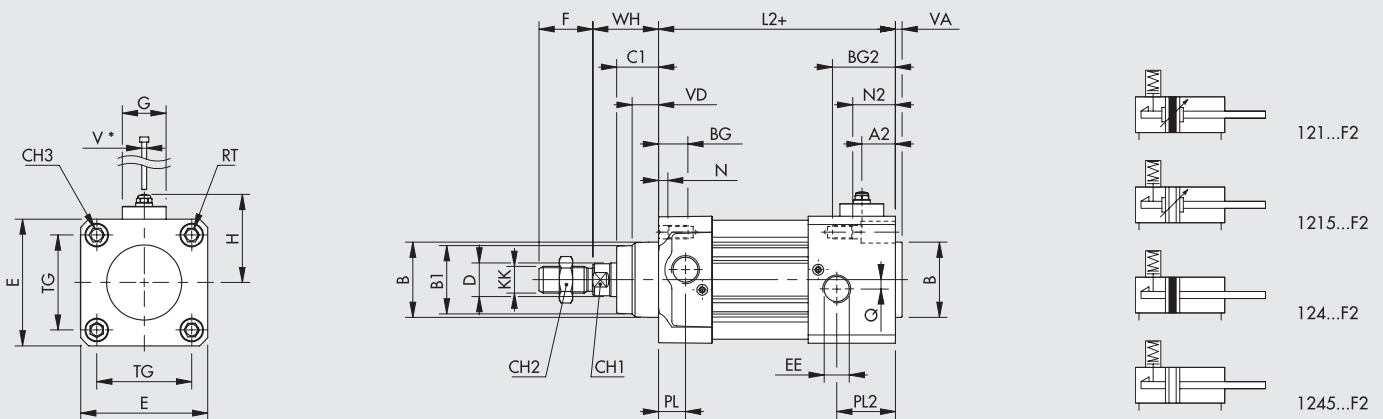
**DIMENSIONS OF SINGLE PISTON ROD VERSIONS**

**LOCKING WITH EXTENDED PISTON ROD**

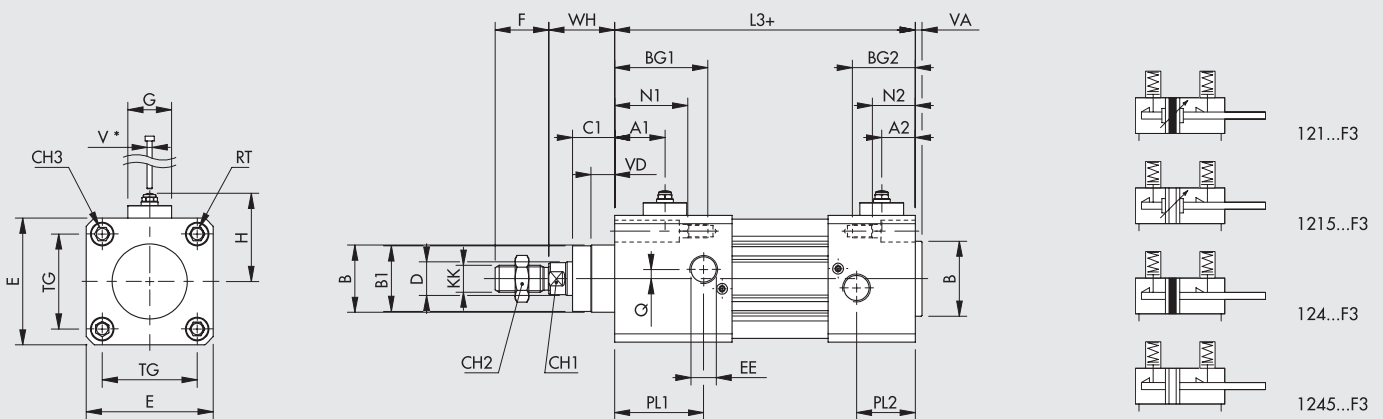
\* = THREADING FOR MANUAL RELEASE SCREW  
+ = ADD STROKE



**LOCKING WITH RETRACTED PISTON ROD**



**LOCKING WITH EXTENDED AND RETRACTED PISTON ROD**

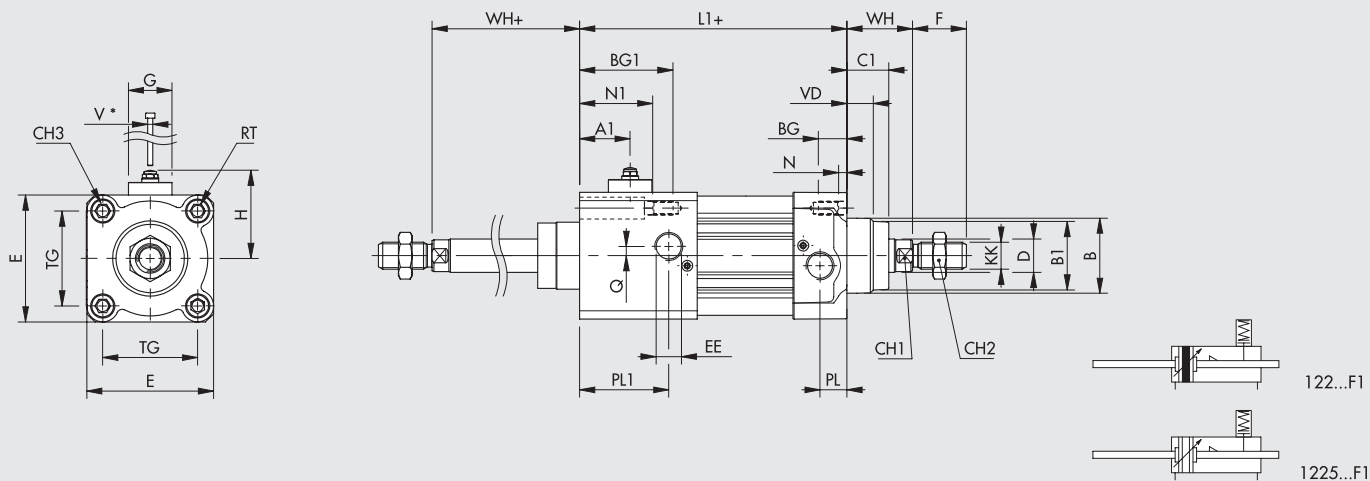


Ø	A1	A2	B	B1	BG	BG1	BG2	C1	CH1	CH2	CH3	D	E	EE	F	G	H	KK	L1	L2	L3	N	N1	N2	PL	PL1	PL2	Q	RT	TG	V*	VA	VD	WH
32	24	15	30	28	14.5	25.5	25.5	16	10	17	6	12	46	1/8	22	24	40	M10x1.25	105	105	116	4.5	15.5	15.5	10	21	21	4	M6	32.5	M3	4	6.5	26
40	28	16	35	33	14.5	39.5	28.5	20	13	19	6	16	54	1/4	24	24	45	M12x1.25	130	119	144	4.5	29.5	18.5	12	35	26	4	M6	38	M3	4	8	30
50	28	20	40	38	17.5	44.5	35.5	25	17	24	8	20	64.5	1/4	32	26	48	M16x1.5	133	124	151	5.5	32.5	23.5	14	41	32	6	M8	46.5	M3	4	13	37
63	28	21	45	40	17.5	43.5	36.5	25	17	24	8	20	75.5	3/8	32	26	55	M16x1.5	147	140	166	5.5	31.5	24.5	16	41	34	6	M8	56.5	M3	4	14	37
80	30	25	45	43	21.5	50.5	45.5	33	22	30	10	25	94	3/8	40	29	63	M20x1.5	157	152	181	5.5	34.5	29.5	18	47	42	7	M10	72	M3	4	12	46
100	33	27	55	49	21.5	58.5	46.5	38	22	30	10	25	111	1/2	40	29	72	M20x1.5	175	163	200	5.5	42.5	30.5	20	50	45	7	M10	89	M3	4	14	51

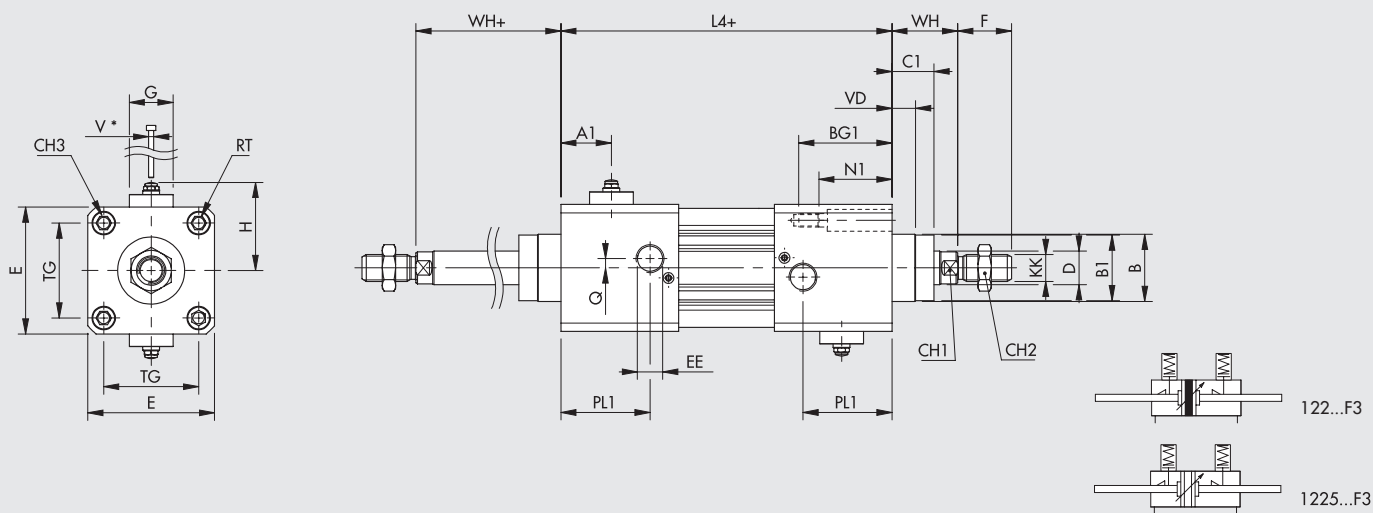
**DIMENSIONS OF THROUGH-ROD VERSIONS**

**LOCKING ON ONE SIDE ONLY**

\* = THREADING FOR MANUAL RELEASE SCREW  
+ = ADD STROKE



**LOCKING WITH EXTENDED AND RETRACTED PISTON ROD**



Ø	A1	B	B1	BG	BG1	C1	CH1	CH2	CH3	D	E	EE	F	G	H	KK	L1	L4	N	N1	PL	PL1	Q	RT	TG	V*	VD	WH
32	24	30	28	14.5	25.5	16	10	17	6	12	46	1/8	22	24	40	M10x1.25	105	116	4.5	15.5	10	21	4	M6	32.5	M3	6.5	26
40	28	35	33	14.5	39.5	20	13	19	6	16	54	1/4	24	24	45	M12x1.25	130	155	4.5	29.5	12	35	4	M6	38	M3	8	30
50	28	40	38	17.5	44.5	25	17	24	8	20	64.5	1/4	32	26	48	M16x1.5	133	160	5.5	32.5	14	41	6	M8	46.5	M3	13	37
63	28	45	40	17.5	43.5	25	17	24	8	20	75.5	3/8	32	26	55	M16x1.5	147	173	5.5	31.5	16	41	6	M8	56.5	M3	14	37
80	30	45	43	21.5	50.5	33	22	30	10	25	94	3/8	40	29	63	M20x1.5	157	186	5.5	34.5	18	47	7	M10	72	M3	12	46
100	33	55	49	21.5	58.5	38	22	30	10	25	111	1/2	40	29	72	M20x1.5	175	212	5.5	42.5	20	50	7	M10	89	M3	14	51

KEY TO CODES

CYL	1 2 1	3	3 2	0 0 5 0	C	P	F1
	TYPE		BORE	STROKE	MATERIAL	GASKETS	END-OF-STROKE STOP
	121 Double-acting cushioned ● 122 Through-rod 124 Double-acting, non-cushioned	3 Series 3 ◆ 4 Series 3 No stick-slip 5 Series 3 Non-magnetic	▲ 32 = Ø 32 40 = Ø 40 50 = Ø 50 63 = Ø 63 80 = Ø 80 A1 = Ø 100	For the maximum suppliable strokes, look at the technical data	A C45 chromed rod, aluminium piston rod: standard for all cylinders with ≥ 1000 mm-stroke cylinders and for cylinder with Ø 80 mm and over C C45 chromed rod, technopolymer piston: standard for cylinders of Ø 32 to 63 mm with <1000 mm strokes Z Stainless steel piston rod and nut aluminium piston X Stainless steel piston rod and nut technopolymer piston	N NBR gaskets P Polyurethane gaskets V FKM/FPM gaskets ● B Low temperature	F1 Extended piston rod F2 Retracting piston rod F3 Retracting piston rod and extended piston rod

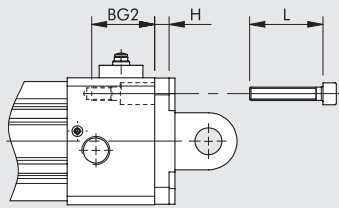
- Only available for versions with aluminium piston (A or Z)
- ◆ For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only

▲ Regarding the Ø32 cylinders, the heads with end-of-stroke stop hasn't the pneumatic cushioning

ACCESSORIES

All the accessories of ISO 15552 cylinders (page A1.45) can be used, **except for the guide units (GDS, GDH, GDM)** since the protrusion of the locking piston interferes with the guide unit.

**NB:** The screws used to secure the accessory to the heads fitted with a stop must be longer than those supplied together with the accessories. The screw length is calculated by summing up the catalogue-specified thickness of the accessory flange and the BG1 dimension, rounding down to -3 mm.



$$L = BG2 + H - (0 - 3) \text{ mm}$$

NOTES