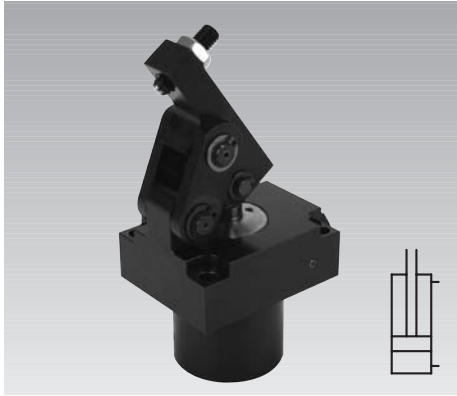


Hinge Clamp 70 bar with metallic wiper edge and optional position monitoring double acting, max. operating pressure 70 bar



Application

The hinge clamp is a low-cost hydraulic clamping element with many installation and connecting possibilities.

If the clamping lever is completely retracted, unimpeded loading and unloading of the fixture can be effected. A clamping recess in the workpiece a little bit wider than the clamping lever is sufficient as clamping surface.

The special kinematics allow clamping nearly without side loads of workpieces which are very sensitive against deformation.

This line is designed for the direct connection to the machine hydraulics with a max. operating pressure of 70 bar.

Description

When pressurising the element, the piston moves upwards and swivels the clamping lever over the hinges forwards and at the same time downwards onto the workpiece. The piston force is deviated by 180° and is available as clamping force with virtually no loss of efficiency.

If the level of the clamping surface is exactly on height h (see page 2), no side loads are introduced into the workpiece. The bodies are recessible in the fixture up to the flange.

Alternatively intermediate plates are available for height adjustment.

All versions are optionally available with extended piston rod and with inductive or pneumatic position monitoring.

Important notes!

Hydraulic clamping elements generate big forces. Considerable injuries can be caused to fingers during clamping and unclamping in the effective area of the clamping arm.

Remedy: Protection device with electrical locking.

The hinge clamp has to be checked now and then on contamination by swarf and has to be cleaned, if required.

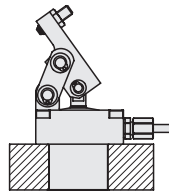
Operating conditions, tolerances and other data see data sheet A 0.100.

Advantages

- High clamping force at low operating pressure
- Standard metallic wiper edge
- Compact design
- Body partially recessible
- Unimpeded loading and unloading of the fixture
- Clamping lever can be swivelled into small recesses
- Clamping possible without side loads
- Long clamping lever adaptable to the workpiece
- Lever mechanism easy to clean
- Standard FKM seals
- Inductive or pneumatic control of the clamping position and the clamping range optional

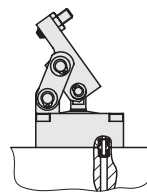
Installation and connecting possibilities

Pipe thread

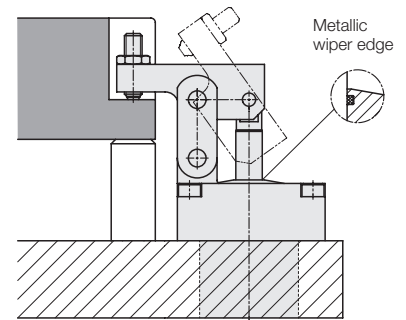


Pressure oil connector

for vertically-drilled channels



Function

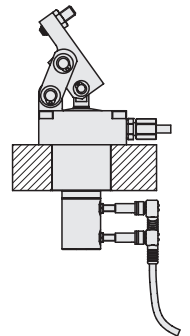
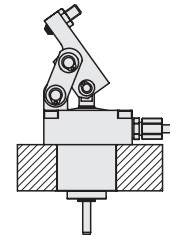


Option

Extended piston rod

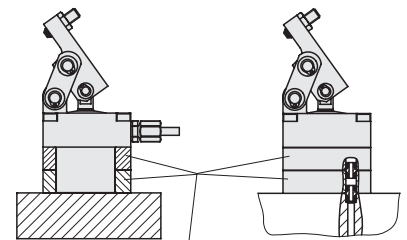
without position monitoring

with position monitoring



Accessories

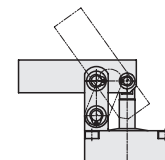
Intermediate plate



Intermediate plate

Option

Long clamping lever



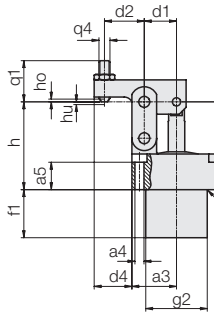
Alternatively all versions are also available without clamping lever.



Pipe thread

Clamping lever with
Swivel contact bolt

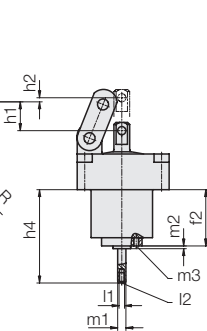
1826-X31



Pressure oil connector

without clamping lever /
extended piston rod

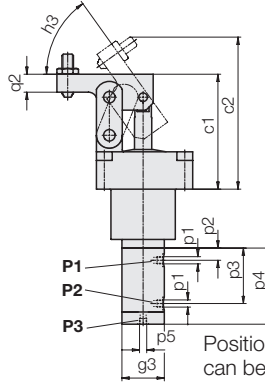
1826-X40



Optionally

with pneumatic
position monitoring

1826-X41P

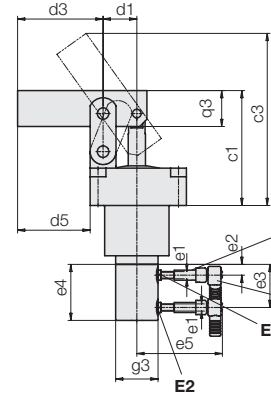


Position monitorings
can be mounted rotated
by 4x 90°

Optionally

with inductive position monitoring/
long clamping lever

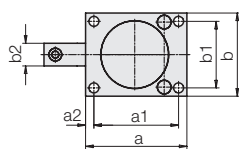
1826-X42E



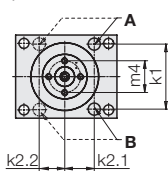
Accessory:
Inductive proximity switch
Plug and cable

View from below

Without extended
piston rod



With extended
piston rod



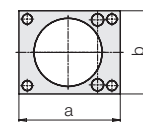
1826-2XX

1826-1XX

- A** = Clamping
- B** = Unclamping
- E1** = Clamping range, inductive
- E2** = Unclamped, inductive
- P1** = Clamping range, pneum.
- P2** = Unclamped, pneum.
- P3** = Exhaust air, pneum.
position monitoring

Accessory:

Intermediate plate



Material

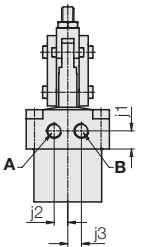
Clamping lever: C45+C (1.0503)
Cylinder body: steel
Sealings: FKM
Piston: high alloy steel

Accessory:

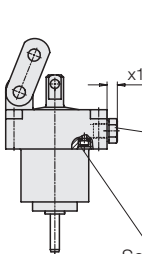
Screw plug G 1/8
alternative: Plug flush screwable

Socket head cap screw with
USIT ring is standard
for all versions

1826-X31

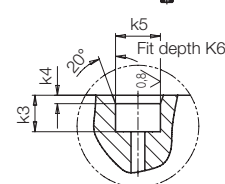
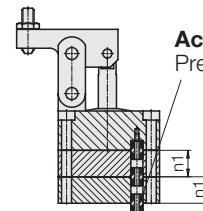


1826-X40



Accessory:

Pressure oil connector

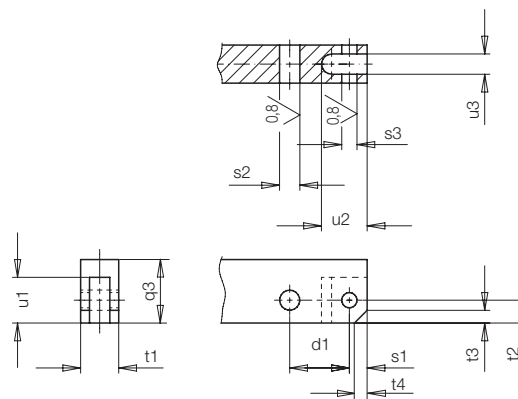


For oil supply through pressure oil connectors, these
bore holes have to be provided in the base plate

Required accessory when using pressure oil connec-
tors: 2x plugs or 2x screw plugs (see page 4)

Connecting dimensions for self-manufactured clamping levers

Size		1	2
d1	[mm]	23.5	33
q3	[mm]	25	40
s1	[mm]	7	10.5
s2	[mm]	Ø8 H7	Ø12 H7
s3	[mm]	Ø6 H7	Ø9 H7
t1	[mm]	15 -0.1	20 -0.1
t2	[mm]	9	16.5
t3	[mm]	5	8
t4	[mm]	5	8
u1	[mm]	18	27.5
u2	[mm]	18	24
u3	[mm]	8.1 +0.1	10 +0.1



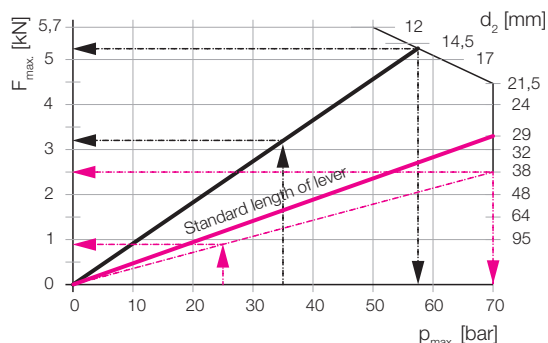


Size		1	2	
Clamping force at length of clamping lever d2 and 70 bar	[kN]	3.3	7.0	
Clamping force at length of clamping lever d2 and 70 bar with extended piston rod	[kN]	3.2	6.9	
Oil volume clamping	[cm ³]	14.8	43.4	
Oil volume clamping with extended piston rod	[cm ³]	14.1	42.4	
Oil volume unclamping	[cm ³]	12.1	36.4	
Admissible oil flow rate	[cm ³ /s]	24.5	24.5	
a	[mm]	67	80	
a1	[mm]	56	66	
a2	[mm]	5.5	7	
a3	[mm]	32.5	46	
a4	[mm]	4 x Ø 6.6	4 x Ø 9	
a5	[mm]	20	18	
b	[mm]	55	70	
b1	[mm]	44	56	
b2	[mm]	15	20	
c1	[mm]	80	116	
c2	[mm]	106	150	
c3	[mm]	120	171	
d1	[mm]	23.5	33	
d2	[mm]	29	39.5	
d3	[mm]	59.5	81.5	
d4	[mm]	27.5	37.5	
d5	[mm]	50.5	68.5	
e1		M5 x 0.5	M5 x 0.5	
e2	[mm]	7.5	9.7	
e3	[mm]	30	41.9	
e4	[mm]	39	49	
e5	[mm]	approx. 60	approx. 60	
f1	[mm]	35	47	
f2	[mm]	41	53	
G		G 1/8	G 1/8	
Max. size of connecting fitting		6 L	8 S	
g2	[mm]	Ø 44.8	Ø 62.8	
g3	[mm]	Ø 29.5	Ø 39	
h	ideal clamping point	[mm]	64	92.5
ho	Upper end of the clamping range	[mm]	2	2.7
hu	Lower end of the clamping range	[mm]	2	2.7
h1	Stroke up to the ideal clamping point	[mm]	21	30
h2	Stroke up to the end of the clamping stroke	[mm]	3	4.5
h3		[°]	54.5	55.5
h4	extended - h1 - h2	[mm]	68	90.5
j1	[mm]	12	16	
j2	[mm]	9	13.5	
j3	[mm]	9	13.5	
k1	[mm]	43 ±0.02	55 ±0.02	
k2.1	[mm]	19.5 ±0.05	-	
k2.2	[mm]	-	27 ±0.05	
k3	[mm]	6.5	6.5	
k4	[mm]	1.5	1.5	
k5	[mm]	Ø 8 H7	Ø 8 H7	
k6	[mm]	5.5	5.5	
l1	[mm]	Ø 6 f7	Ø 6 f7	
l2		M4 x 7.5 deep	M4 x 7.5 deep	
m1	[mm]	Ø 13 f7	Ø 13 f7	
m2	[mm]	2	2	
m3		M4 x 6 deep	M4 x 6 deep	
m4	[mm]	21	27	
n1	[mm]	17.5	23.5	
p1		M5	M5	
p2	[mm]	8.5	10.6	
p3	[mm]	38.6	50.9	
p4	[mm]	53	73	
p5		M5	G 1/4	
q1	[mm]	30	40	
q2	[mm]	12.5	20	
q3	[mm]	25	40	
q4		M8	M12	
R	[mm]	0.8	0.8	
x1	[mm]	7	7	
Weight	1826-X30	[kg]	1.17	2.73
	1826-X31	[kg]	1.31	3.15
	1826-X32	[kg]	1.35	3.50
	1826-X40	[kg]	1.21	2.79
	1826-X41	[kg]	1.35	3.21
	1826-X42	[kg]	1.39	3.56



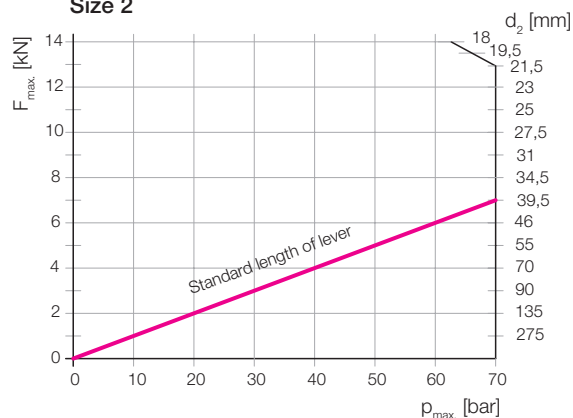
Clamping forces F_{max} as a function of the length of the clamping lever d_2 and maximum operating pressure p_{max} .

Size 1



Clamping force with extended piston rod = $0.97 \times F$

Size 2



Clamping force with extended piston rod = $0.99 \times F$

Example 1:

Given: Length of clamping lever $d_2 = 38$ mm
Operating pressure $p = 25$ bar

Searched: Clamping force F
As per diagram: $F_{max} = 2.5$ kN
 $p_{max} = 70$ bar

Solution: Clamping force $F = F_{max} \times \frac{p}{p_{max}} = 2.5 \text{ kN} \times \frac{25 \text{ bar}}{70 \text{ bar}} = 0.9 \text{ kN}$

Example 2:

Given: Length of clamping lever $d_2 = 15$ mm
Operating pressure $p = 35$ bar

Searched: Clamping force F
As per diagram: $F_{max} = 5.3$ kN
 $p_{max} = 58$ bar

Solution: Clamping force $F = F_{max} \times \frac{p}{p_{max}} = 5.3 \text{ kN} \times \frac{35 \text{ bar}}{58 \text{ bar}} = 3.2 \text{ kN}$

Code for part-numbers

- 1 = Size 1
- 2 = Size 2

1826 - **X X X X**
Basic type

- 3 = Pipe thread at the back and pressure oil connectors
- 4 = Pipe thread at the back and pressure oil connectors with extended piston rod *)

- E = mounted position monitoring, inductive (without proximity switch)
- P = mounted position monitoring, pneumatic

- 0 = without clamping lever
- 1 = clamping lever with swivel contact bolt
- 2 = long clamping lever, unmachined
Material: C45+C (1.0503)

*) Condition for mounted position monitoring (addition: E or P)

Accessories Part numbers

Size	1	2
Intermediate plate	3456-496	3456-497
Pressure oil connector	9210-145	9210-145
Plug, flush screwable with hexagon socket	0361-986	0361-986
Screw plug with hexagon head	3610-008	3610-008
Pneumatic position monitoring, complete **)	0353-845	0353-853
Inductive position monitoring, (without inductive proximity switch) **)	0353-846	0353-854
Inductive proximity switch	3829-198	3829-198
Plug and cable for inductive proximity switch	3829-099	3829-099

***) Only mountable at 1826-X4X

Technical characteristics for

inductive proximity switches 3829-198

Operating voltage U_B	10 ... 30 V DC
Switching function	Interlock
Output	PNP
Filter body material	Stainless steel
Protection as per DIN 40050	IP 67
Environmental temperature	-25 ... +70 °C
Connection	Plug
LED Function display	Yes
Constant current max.	150 mA
Rated operating distance	0.8 mm
Protected against short circuits	yes