TECHNICAL DATASHEET

GROOVED RIGID COUPLING | GKS

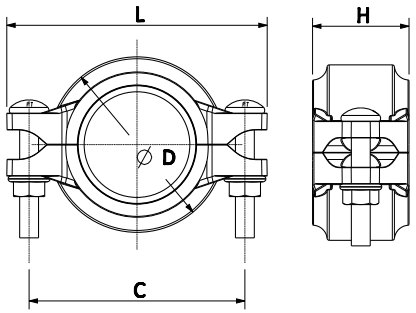
Size range: 1" - 12"

FM APPROVED

UL

CNBOP-PIB

EAC



Mechanical couplings are applied to make a safe, fast and reliable connection between grooved pipes and/or fittings. GKS is a rigid type of coupling and does not allow for any pipe movements when under pressure and in service. Please read our installation instructions for carefree application.

Reference			Nominal size		Pipe Ø O.D.	Rigid coupling dimensions				Bolt size	Socket wrench	Torque	Weight	Marking
Red	Galva	White	NPS inch	DN mm	mm	Ø mm	L mm	H mm	C mm	d1xL	mm	Nm	kg	
GKSR	GKSG	GKSW	1	25	33,7	55,0	97,0	45	73	M10x40	15	44-54	0,45	GKS
GKSR	GKSG	GKSW	1¼	32	42,4	63,5	107,5	45	84	M10x50	15	44-54	0,50	GKS
GKSR	GKSG	GKSW	1½	40	48,3	69,0	114,0	45	90	M10x50	15	44-54	0,53	GKS
GKSR	GKSG	GKSW	2	50	60,3	83,6	124,0	46	102	M10x60	15	44-54	0,67	GKS
GKSR	GKSG	GKSW	2½	65	73,0	98,0	137,0	46	115	M10x60	15	44-54	0,80	GKS
GKSR	GKSG	GKSW	2½	65	76,1	98,0	139,0	46	115	M10x60	15	44-54	0,79	GKS
GKSR	GKSG	GKSW	3	80	88,9	114,0	156,0	46	132	M10x60	15	44-54	0,95	GKS
GKSR	GKSG	GKSW	4	100	108,0	138,0	186,0	50	160	M12x70	18	90-100	1,40[2]	GKS
GKSR	GKSG	GKSW	4	100	114,3	142,0	189,0	50	162	M12x70	18	90-100	1,42	GKS
GKSR	GKSG	GKSW	5	125	133,0	164,0	213,0	50	185	M12x70	18	90-100	1,85[1]	GKS
GKSR	GKSG	GKSW	5	125	139,7	170,0	222,0	50	192	M12x70	18	90-100	1,78	GKS
GKSR	GKSG	GKSW	5	125	141,3	170,0	218,0	50	190	M12x70	18	90-100	1,96	GKS
GKSR	GKSG	GKSW	6	150	165,1	196,0	244,0	50	216	M12x75	18	90-100	2,03	GKS
GKSR	GKSG	GKSW	6	150	168,3	198,0	251,0	50	222	M12x75	18	90-100	2,11	GKS
GKSR	GKSG	GKSW	8	200	216,3	254,0	340,0	60	294	M20x90	30	270-300	4,86[3]	GKS
GKSR	GKSG	GKSW	8	200	219,1	256,0	316,0	60	282	M16x85	24	200-230	3,90	GKS
GKSR	GKSG	GKSW	10	250	267,4	313,0	400,0	64	352	M20x90	30	270-300	6,78[3]	GKS
GKSR	GKSG	GKSW	10	250	273,0	319,0	393,0	64	352	M20x100	30	270-300	6,18	GKS
GKSR	GKSG	GKSW	12	300	318,5	368,0	464,0	65	416	M22x110	34	370-410	9,20[3]	GKS
GKSR	GKSG	GKSW	12	300	323,9	374,0	453,0	65	410	M20x130	30	270-300	8,56	GKS

[1] No FM-approval / [2] No UL-approval / [3] No FM- and UL-approval.

Function

Mechanical couplings are applied to make a safe, fast and reliable connection between grooved pipes and/or fittings. GKS is a rigid type of coupling and does not allow for any pipe movements when under pressure and in service. GKS couplings are designed to be used with the OGS groove system.
Please read our installation instructions for carefree application.

Material specifications

Housing: ductile iron conform to ASTM A536 GR 65-45-12 (EN-GJS-450-10).

Coating:

- Hot dip galvanised.
- Red paint coating RAL 3000, EPD epoxy coating.
- White powder coating RAL 9010 (other colours on request).

Bolts and nuts: medium carbon steel, zinc electroplated, quenched and tempered (ISO 898).

Rubber gasket: 1) EPDM gaskets dispose of the international certifications and have undergone the aging test at 110°C/230°F for a period of 45 days/1080 hours and the freezing test at -40°C/-40°F for a period of 4 days/96 hours.
2) NBR gaskets for special applications (see table).

GASKET COMPOUND GRADE	TEMPERATURE RANGE (°C)	MEDIUM						
		Cold water	Hot water	Air (oil-free)	Nitrogen	Glycol/ water mixtures	Air (with oil vapor)	Hydrocarbons
NBR-TL	-29 / + 83°C				✔		✔	✔
NBR-TL	-29 / + 63°C	✔	✔	✔				
NBR-TL	-29 / + 20°C					✔		

Applications

- Wet & dry fire sprinkler pipe systems
- Glycol/water mixed systems
- Compressed air systems
- Exhaust systems
- HVAC
- Heating systems
- Industrial applications
- Drain pipe systems
- Cooling systems

Working pressure

- Cold water sprinkler applications: 20,7 bar / 2068 kPa / 300 psi
- Other media & applications: we refer to CSTB ATT-21/034_V1 table page 9*
- Vacuüm-resistance (all applications & media except from gas group 1): -0,55 barg (+0,45 bara)**

Approvals***

- Sprinkler-specific:

FM APPROVED
FM standard 1920

UL 213

CNBOP-PIB

EN10311 (CPR305/2011)

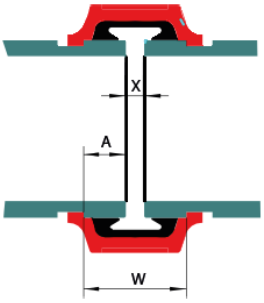
- Other qualifications:

CSTB
ATT 21/034

Becetel

- Rubbercompound tested by Kiwa according to EN 681-1/WC/WD.
- Cstb: test comprise 1000 hours leak-free service at 110°C.
- Becetel: test comprise vacuum tests (0,15 bara) and glycol/water mixture pressure tests (64 barg).

*Mechanical couplings are not CE-marked. We recommend the use within SEP category of the PED.
**GKS couplings have been leak-tested up to -0,85 barg (0,15 bara) according to FM standard 1920.
***All test have been carried out with standard EPDM-gaskets.



Reference			Nominal size		Pipe Ø O.D.	W	A mm			X mm		Max. end load N
Red	Galva	White	NPS inch	DN mm	mm	mm	basic	max.	min.	max.	min.	
GKSR1	GKSG1	GKSW1	1	25	33,7	34	15,9	16,6	15,1	3,2	0	1800
GKSR1¼	GKSG1¼	GKSW1¼	1¼	32	42,4	34	15,9	16,6	15,1	3,2	0	2920
GKSR1½	GKSG1½	GKSW1½	1½	40	48,3	34	15,9	16,6	15,1	3,2	0	3790
GKSR2	GKSG2	GKSW2	2	50	60,3	35	15,9	16,6	15,1	4,2	0	5910
GKSR2½	GKSG2½	GKSW2½	2½	65	73,0	35	15,9	16,6	15,1	4,2	0	8640
GKSR2½	GKSG2½	GKSW2½	2½	65	76,1	35	15,9	16,6	15,1	4,2	0	9410
GKSR3	GKSG3	GKSW3	3	80	88,9	35	15,9	16,6	15,1	4,2	0	12840
GKSR4	GKSG4	GKSW4	4	100	108,0	36	15,9	16,6	15,1	5,2	0	18940
GKSR4	GKSG4	GKSW4	4	100	114,3	36	15,9	16,6	15,1	5,2	0	21220
GKSR5	GKSG5	GKSW5	5	125	133,0	37	15,9	16,6	15,1	5,2	0	28730
GKSR5	GKSG5	GKSW5	5	125	139,7	37	15,9	16,6	15,1	5,2	0	31700
GKSR5	GKSG5	GKSW5	5	125	141,3	37	15,9	16,6	15,1	5,2	0	32430
GKSR6	GKSG6	GKSW6	6	150	165,0	38	15,9	16,6	15,1	5,2	0	44131
GKSR6	GKSG6	GKSW6	6	150	168,3	38	15,9	16,6	15,1	5,2	0	46000
GKSR8	GKSG8	GKSW8	8	200	216,3	44	19,1	19,8	18,3	5,8	0	75990
GKSR8	GKSG8	GKSW8	8	200	219,1	44	19,1	19,8	18,3	5,8	0	77970
GKSR10	GKSG10	GKSW10	10	250	267,4	47	19,1	19,8	18,3	5,8	0	116130
GKSR10	GKSG10	GKSW10	10	250	273,0	47	19,1	19,8	18,3	8,8	0	121050
GKSR12	GKSG12	GKSW12	12	300	318,5	48	19,1	19,8	18,3	9,8	0	164760
GKSR12	GKSG12	GKSW12	12	300	323,9	48	19,1	19,8	18,3	9,8	0	170390

THE ACTUAL GAP BETWEEN PIPES MAY CHANGE ACCORDING TO THE ACTUAL CUT AND ROLL GROOVE

MINIMUM PIPE WALL THICKNESS

Allowable minimum pipe wall thickness combinations with PROFIT - couplings GKS and GKF and rolled grooves.

1. Carbon steel pipes

Nominal pipe size		Minimum thickness T* (Not FM approved) MPW = 12 bar	Minimum thickness T** MWP = 20,7 Bar	Minimum thickness T*** Only combined with FM-approved pipes	
NPS	DN	mm	mm	Thickness (mm)	MWP (Barg)
1	25	-	2,77	1,6	12
1¼	32	2	2,77	1,6	12
1½	40	2	2,77	1,6	12
2	50	2	2,77	1,6	12
2½	65	2	3,05	1,8	12
3	80	2	3,05	2,36	20,7
4	100	2,3	3,05	2,49	20,7
5	125	2,9	3,40	-	-
6	150	2,9	3,40	-	-
8	200	3,6	4,00	-	-
10	250	-	5,00	-	-
12	300	-	6,70	-	-

GKS couplings can be used in combination with pipes shed. 5
(ASME B36.10) at maximum 12 bar working pressure (not FM approved)

2. Stainless steel pipes [1]

NPS Inch	DN mm	Minimum pipe thickness for MWP 10 bar mm	Minimum pipe thickness for MWP 16 bar mm
2"	50	2	2
2.5"	65	2	2
3"	80	2	2
4"	100	2	2.6
5"	125	2.6	3
6"	150	2.6	3
8"	200	3	4
10"	250	3	4
12"	300	3	4

T* According to Nordic Flow® grooved pipes (FM Approved).
T** For FM-application when couplings are combined with pipes with wall thickness bigger than the minimum thickness according to FM Property Loss Prevention datasheet 2-0.
T*** For FM-application only when combination of coupling and pipe are FM-listed.
MWP = maximum working pressure
[1] Test pressure = maximum 1,5 x MWP.

For installations within Europe (EC) please note that the minimum pipe thickness in fire sprinkler piping should be according to standard EN 12845.

GENERAL INFO

- Installers should be trained or experienced to install and understand the product.
- Read and understand all technical datasheets and installation instructions before attempting to install, remove or adjust any Profit piping products.
- Depressurize and drain the sprinkler installation system before attempting to install, remove or adjust any Profit Piping products.
- Never work on piping-systems that are pressurized and /or filled with water.
- Use the necessary Personal Protection Equipment (PPE) to avoid personal injury (helmet, safety shoes and goggles, Profit gloves).

- Profit reserves the right to change specifications, designs and/or standard equipment without notice and without incurring in any obligations.
- Profit red coated products are intended for piping with indoor application (EN 12944-2 corrosivity category C1 & C2). For outdoor installations near the sea (corrosivity category C3) we advise the use of our hot dip galvanized couplings and fittings. For application in corrosivity category C4 (higher salinity climate) or higher, please contact info@pipinglogistics.eu.
- Pressure ratings listed for fire sprinkler applications are CWP (cold working pressure) or MWP (maximum working pressure) at a maximum service temperature of 66°C. This rating may occasionally differ from maximum working pressure listed and/or approved by UL and/or FM, as testing conditions and test pipes can differ. For more information, please contact info@pipinglogistics.eu.
- Maximum working pressure listed is the total of internal and external pressures based on standard weight (ANSI) steel pipe and standard roll or cut groove in accordance with Profit specifications. For more information, please contact info@pipinglogistics.eu.
- For one time field test only, the maximum joint working pressure may be increased by 150% the figure shown.
- Independent technical datasheet for bolts and nuts and rubber gaskets.

Failure to follow these instructions could result in death or serious injury and property damage.

We advise to always store our products in closed and dry environments, the products do not need any specific maintenance once installed on an aboveground sprinkler installation.

REVISION TABLE

Date	△	Notes
04/03/2024	A	Page 5 - Table with minimum pipe wall thickness for stainless steel pipes has been added.
14/03/2024	B	Page 4 - The maximum end load has been added to the table.
26/06/2024	C	Page 3 - Addition of the CE certificate.