

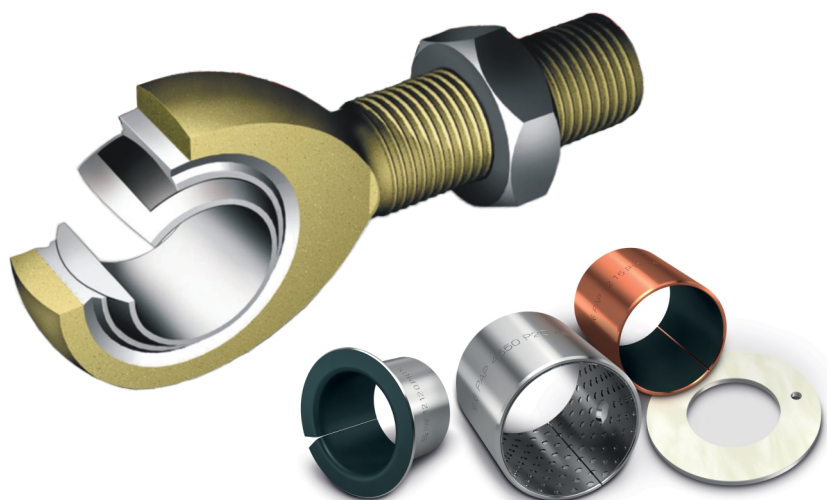
motorsports quality
ROD ENDS
SPHERICAL BEARINGS
and accessories



top user of the year in EU:
TATUUS (Italy) F3 Asia racecar

AURORA®
RODOBAL®
Seals-It®

ORIGINAL
PERMAGLIDE®



SYTON AH130



ORAM for TATUUS



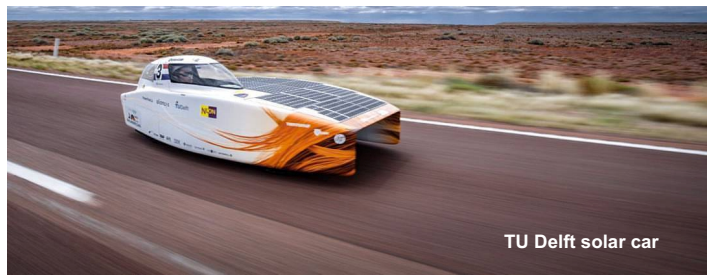
HERERO 4x4



MYGALE



CITROËN R5



TU Delft solar car



EVANTRA - Mazzanti Automobili

DUCATI racing team



supporting 20+ F Student teams intrnationally, as example TU Graz

LEADING
MANUFACTURERS

WORLDWIDE KNOWN
BRANDS

FUERENDE
HERSTELLER

ETABLIERTE
MARKEN

CONSTRUCTEURS A
REPUTATION MONDIALE

MARQUES CONNUES
DANS LE MONDE

COSTRUTTORI
AFFERMATI

MARCHE APPREZZATE



RODOBAL®

RULAND

Seals-It®

INTERNATIONAL MASTER
DISTRIBUTOR IN EUROPE

VERTRIEBSZENTRALE
IN EUROPA

CENTRALE DE DISTRIBUTION
EN EUROPE

DISTRIBUZIONE CENTRALE
IN EUROPA



- *extensive inventory*
- *experience*
- *service*

- **breiteste Typenpalette**
- **technische Erfahrung**
- **Beratung und Service**

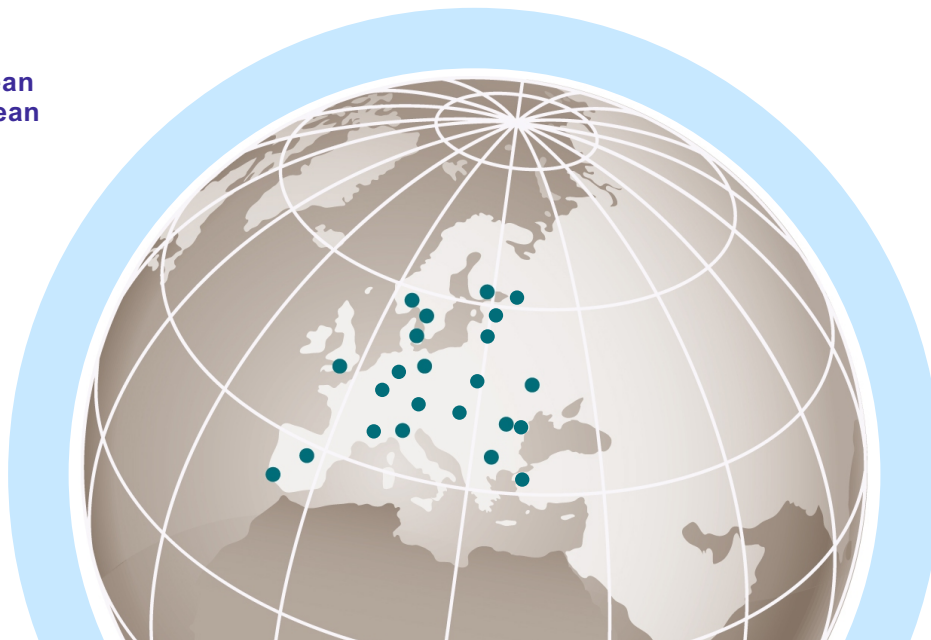
- **grande gamme**
- **expérience**
- **service**

- **assortimento molto ampio**
- **esperienza**
- **supporto tecnico e servizio**

WORLDWIDE SUPPLY TO
REGIONAL DISTRIBUTORS
AND DIRECT USERS

shipment to
40+ pan-European
and Mediterranean
countries

4500+
registered
professional
users





**TOP QUALITY
ROD ENDS and
SPERICAL BEARINGS
for MOTORSPORTS**



narrow series
schmale Reihe
série étroite
serie stretta



wide series
breite Reihe
série epaisse
serie larga



with staking groove
mit Vestemmungsnut
à sertir
da cianfrinare



high misalignment
hoher Kippwinkel
grand misalignement
alto angolo di ribaltamento

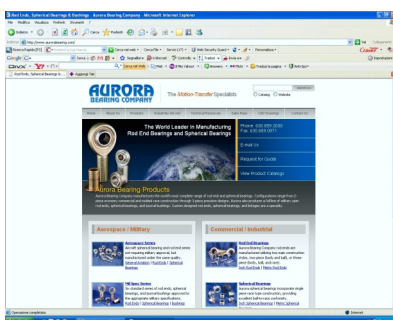


Since 1971, the **Aurora Bearing Company**, with facility in Montgomery, Illinois (USA), has been exclusively designing and manufacturing rod ends and spherical bearings with sliding couplings

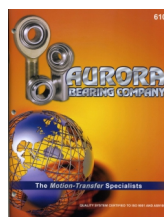
This company is since then well established on various markets, earning a world-wide reputation, supplying parts for *general industrial* needs as well as for those very demanding applications typical for the *military, aerospace* and *motor sports* branches.

**TECHNICAL
LITERATURE
AVAILABLE
through:**

website



<http://www.aurorabearing.com>



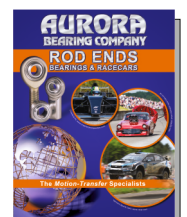
**printed
catalogue**



**on CD-ROM:
- . pdf catalogue
- CAD part libraries**



**downloadable
catalogue
as .pdf file**



**facts and information
for users and
engineers**

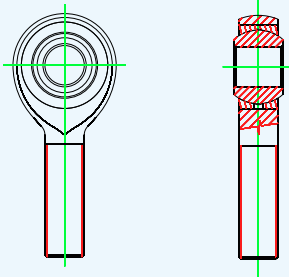
MOST FREQUENTLY USED ITEMS IN MOTORSPORTS APPLICATIONS



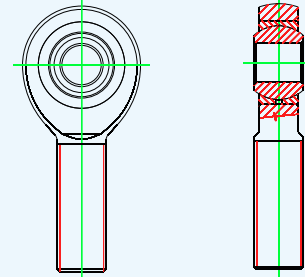
shaft thread \varnothing = ball bore \varnothing

shaft thread \varnothing > ball bore \varnothing

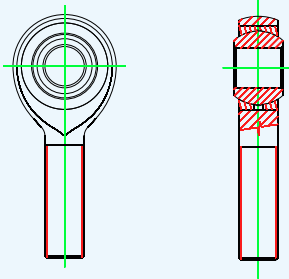
AM-..T
high strength alloy
 alloy steel ball
 alloy steel race
 alloy steel body,
 zinc plated



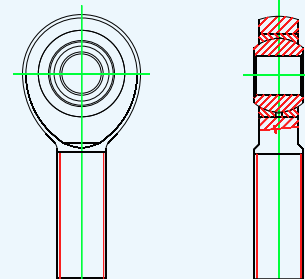
XAM-..T
high strength alloy heavy duty shanks
 alloy steel ball
 alloy steel race
 alloy steel body,
 zinc plated



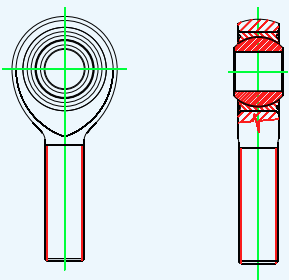
RAM-..T
high performance
 alloy steel ball
 alloy steel race
 alloy steel body,
 bright nickel plated



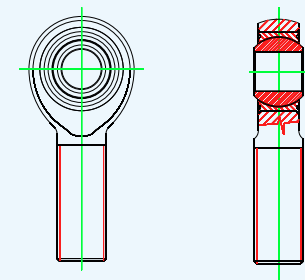
RXAM-..T
high performance heavy duty shanks
 alloy steel ball
 alloy steel race
 alloy steel body,
 bright nickel plated



PRM-..T
performance racing
 alloy steel ball
 stainless steel race
 alloy steel body
 aerospace quality PTFE

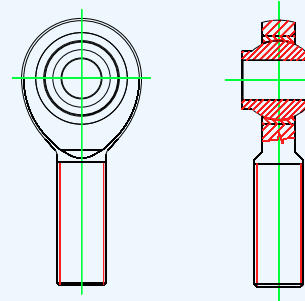


PRXM-..T
performance racing heavy duty shanks
 alloy steel ball
 stainless steel race
 alloy steel body
 aerospace quality PTFE



aerospace experience for best motorsports performance
 Erfahrung aus der Luftfahrt für höchste Motorsportleistung
 expérience aéronautique pour résultats compétition
 esperienza aerospaziale per massima prestazione motorsport

HXAM-..T
high misalignment
 alloy steel ball
 alloy steel race
 alloy steel body
 aerospace quality PTFE



NARROW SERIES

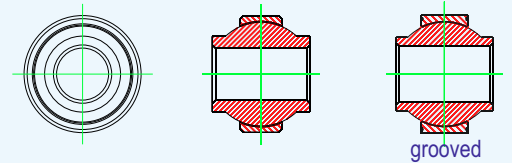
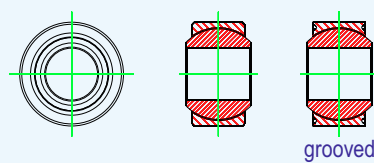
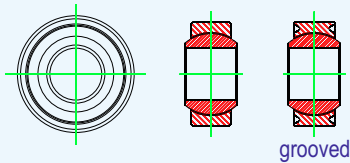
- COM-..T generic application
- COM-T-KH impact and wear resistant
- PNB-..T performance racing
- PNB-TG performance racing, grooved
- ANC-..T aerospace qualified
- ANC..TG aerospace qualified, grooved

WIDE SERIES

- PWB-..T performance racing
- PWB-TG performance racing, grooved
- AWC-..T aerospace qualified
- AWC..TG aerospace qualified, grooved

HIGH MISALIGNMENT

- HAB-..T
- HAB-..TG grooved
- HAB-M..TG metric sizes, grooved



...many other types and sizes available





RODOBAL

ROD ENDS - SPHERICAL BEARINGS

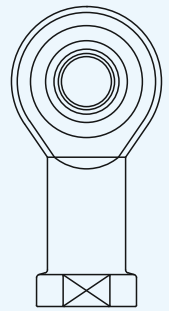
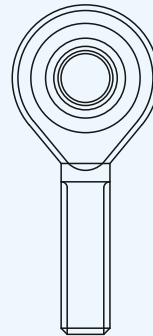
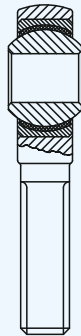
MOTORSPORTS PARTS - STANDARD LINE

size 6 mm --> size 25 mm

standard, fine and special threads

METRIC
mm

DIN 648 K

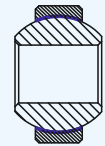
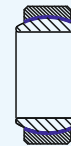
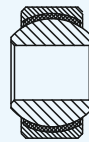
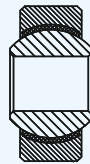


RM..MTE
RML..MTE

RF..MTE
RFL..MTE

NON-STANDARD items examples

RM 18 MTHE
metric high misalignment



RM 25X-1
25 mm male
regreasable,
impact and wear resistant,
for off-road applications

RS..MTE
RS..MTA

RG..MTE

GE..MTE

GEH..MTE

DIN 648 K
wide series

DIN 648 E
narrow series

DIN 648 G
high angle series

RS 6 SA.HT
Ø 6 mm bore
high temperature
up to +500°C

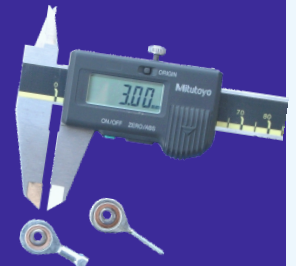


wind tunnel miniature rod ends

miniature sizes, bore 2 mm,
3 mm, 4 mm and 5 mm,

smooth and precision fit
for scaled models and testing rigs
used in wind tunnels.

RM 3 X and RML 3 X - alloy steel bodies



motorcycles specials

aluminum body,
6 mm bore and thread

RF..SE.AL, female
RM..SE.AL, male



RF 8 SE.82
space saving design,
for steering dampers



DIN 71802



wind tunnel picture courtesy of FONDTECH - ITALY



ROD ENDS ACCESSORIES

SWAGING TOOL SET

SET WERKZEUGE ZUR VERSTEMMUNG

SET OUTILS DE CHAINFREINAGE

SET UTENSILI PER CIANFRINARE



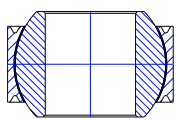
1-3 swaging first tool, upper and lower part
Ober- und Unterteil 1. Versteimmungswerkzeug
outil de chainfreinage, demi-parts
parti superiore e inferiore primo utensile

2-5 centering pin
Zentrierhilfe
aide de centre
spina di centraggio

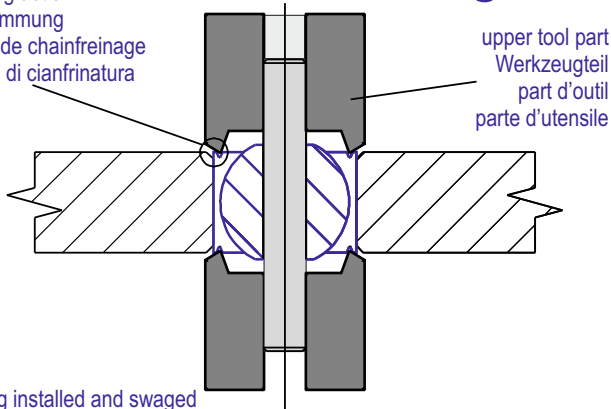
4-6 finishing second tool, upper and lower part
Ober- und Unterteil 2. Werkzeug
outil de finissage, demi-parts
parti superiore e inferiore utensile di finitura

spherical bearing with staking groove
Gelenklager mit Versteimmungsnut
rotules avec rainure de chainfreinage
snodo sferico con scanalatura per cianfrinatura

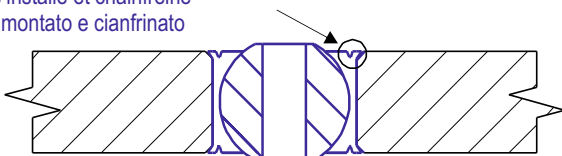
ex.: **AURORA**
p/n **PWB-12TG**



swaging action
Versteimmung
action de chainfreinage
azione di cianfrinatura



bearing installed and swaged
Gelenklager montiert und verstemmt
rotules installé et chainfreiné
snodo montato e cianfrinato



bearing removal tools available
Werkzeuge für Demontage von verstemmten Lager
outils pour demontage rotules chainfreinées
utensili per rimozione snodi cianfrinati

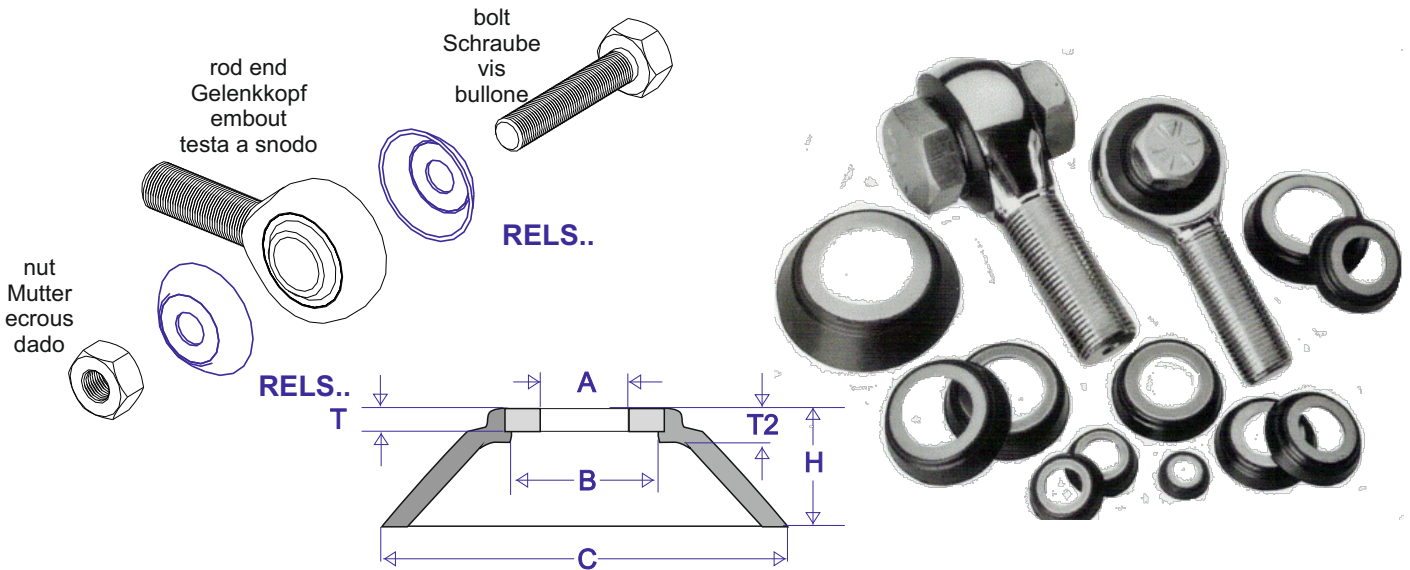


LATERAL SEALS for ROD ENDS

SEITLICHEN ABDICHTUNGEN für GELENKKÖPFE

JOINTS LATERAUX pour EMBOUTS

TENUTE LATERALI per TESTE A SNODO



per teste a snodo metriche - for metric rod ends - pour embouts métriques - für metrische Gelenkköpfe

PART#	COD. PROD.	mis.	A	B	C	H	T	T2	
			mm	mm	mm	mm	mm	mm	
RELS 5	WS 5MM	5 mm	5,25	8,28	11,22	2,41	0,50	0,76	
RELS 6	WS 6MM	6 mm	6,25	9,53	12,70	3,05	0,69	0,94	
RELS 8	WS 8MM	8 mm	8,25	12,37	17,78	5,08	1,20	1,44	
RELS 10	WS 10MM	10 mm	10,25	13,46	20,32	5,59	1,20	1,44	
RELS 12	WS 12MM	12 mm	12,25	18,54	28,58	6,35	1,20	1,70	
RELS 14	WS 14MM	14 mm	14,25	18,54	28,57	6,35	1,20	1,70	
RELS 16	WS 16MM	16 mm	16,25	22,40	31,70	6,80	1,20	1,70	
RELS 18	WS 18MM	18 mm	18,25	22,60	32,69	8,25	1,20	1,70	
RELS 20	WS 20MM	20 mm	20,25	25,15	38,10	10,16	1,20	1,70	
RELS 22	WS 22MM*	22 mm	su richiesta - auf Anfrage - sur demande						
RELS 25	WS 25MM	25 mm	25,25	33,80	53,30	12,70	1,50	1,50	
RELS 30	WS 30MM	30 mm	30,25	55,88	56,70	13,70	2,03	2,03	



per teste a snodo in pollici - for rod ends inch - pour embouts en pouces - für zöllige Gelenkköpfe

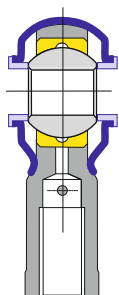
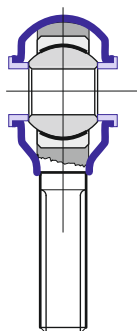
PART#	COD. PROD.	mis./size/taille/Gr.	A	B	C	H	T	T2
		nominal (fract. of 1") Ø mm	mm	mm	mm	mm	mm	mm
RELSI 3	WS 1870	3/16"	4,763	5,08	8,28	11,23	2,41	0,51
RELSI 4	WS 2500	1/4"	6,350	6,60	9,53	12,70	3,05	0,69
RELSI 5	WS 3120	5/16"	7,9375	8,18	12,37	17,78	5,08	1,19
RELSI 6	WS 3750	3/8"	9,525	9,78	13,46	20,32	5,59	1,19
RELSI 7	WS 4370	7/16"	11,1125	11,38	15,90	22,23	6,35	1,19
RELSI 8	WS 5000	1/2"	12,700	12,95	18,54	28,58	6,35	1,19
RELSI 10	WS 6250	5/8"	15,875	16,13	22,40	31,37	6,78	1,19
RELSI 12	WS 7500	3/4"	19,050	19,30	25,55	35,08	9,32	1,19
RELSI 14	WS 8750	7/8"	22,225	22,48	28,58	48,01	8,00	1,07
RELSI 16	WS 1000	1"	25,400	25,65	31,24	53,34	12,70	1,27



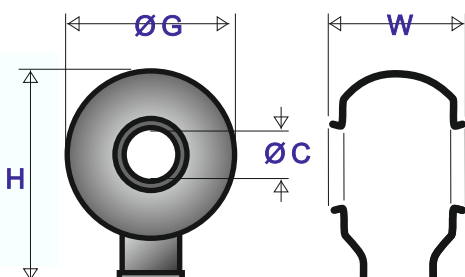


RUBBER PROTECTIONS RERS..

DISTANCE RINGS DR..



RERS..



for rod ends...
für Gelenkköpfe...
pour embouts...
per teste a snodo...

PART#		Ø C mm	Ø G mm	H mm	W mm
RERS 1	RF 6.. - RM 6..	8	27	32,5	26,5
	RF 8.. - RM 8..				
RERS 2	RF 10.. - RM 10..	10	33,5	39	32,5
	RF 12.. - RM 12..				
RERS 3	RF 14.. - RM 14..	14	43,5	51	39
	RF 16.. - RM 16..				
	RF 18.. - RM 18..				
RERS 4	RF 20.. - RM 20..	19	56	63	46
	RF 22.. - RM 22..				
	RF 25.. - RM 25..				
RERS 5	RF 30.. - RM 30..	29	78	85	60
	RF 35.. - RM 35..				

Task: protection of rod ends against corrosive influences by the environment or dust contamination of the sliding coupling

Material: CR neoprene

Mounting: rod ends can be easily introduced in the rubber sealings using seeger ring pliers to widen the bottom sleeve

Lubrication: for the permanent lubrication fill the whole space between rod end and rubber booth with grease

Order: specify distance ring type, eg. 5 pcs. RERS2 + 10 pcs. DR 12

GUMMI-SCHUTZKAPPEN RERS..

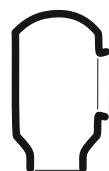
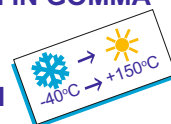
DISTANZRINGE DR..

PROTECTIONS RERS..

BAGUES DE DISTANCE DR..

PROTEZIONI IN GOMMA RERS..

DISTANZIALI DR..



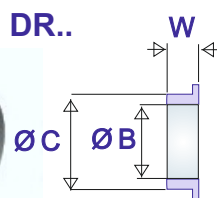
new!

RERS..B

for rod ends with stud
für Gelenkköpfe mit Bolzen
pour embouts avec perno
per teste a snodo con perno



DR..



PART#	Ø B mm	Ø C mm	Ø A mm	W mm	
DR 8	8	10,3	12	6	on demand only
DR 8.B7	8	10,3	12	7	stainless steel
DR 10	10	12,5	14	6	stainless steel
DR 10.B7	10	15	22	7	stainless steel
DR 10.B7.CR	10	15	22	7	carbon steel, phosphated
DR 12	12	15	17	8	stainless steel
DR 14	14	16,8	19	8	stainless steel
DR 16	16	19	21	8	stainless steel

Emploi: protègent les embouts à rotule de la corrosion et l'accouplement sphérique des poussières et autres influences extérieures.

Matériel: protection en néoprène CR

Montage: utiliser une pince à arrêtage seeger pour introduire l'embout par le fond de la protection

Graissage: pour la lubrification permanente remplir de graisse la protection

Commander: indiquer type bague de distance, ex. 5 RERS2 + 10 pcs. DR 12

Funzione: proteggono le teste a snodo da agenti ambientali aggressivi e da contaminazione da polvere dell'accoppiamento sferico

Materiale: neoprene CR

Montaggio: per agevolare l'introduzione della testa a snodo, allargare il foro della protezione con una pinza per seeger

Lubrificazione: per la lubrificazione permanente, riempire l'interno della protezione con lubrificante

Ordinare: specificare tipo distanziale, es. 5 pz. RERS 2 + 10 pz. DR 12

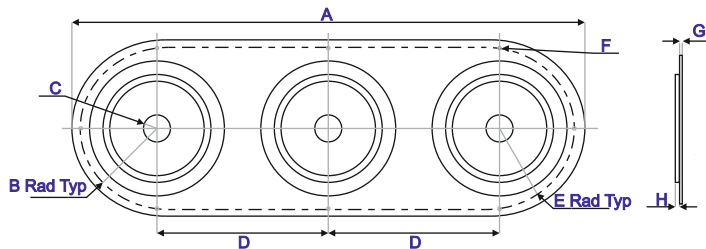
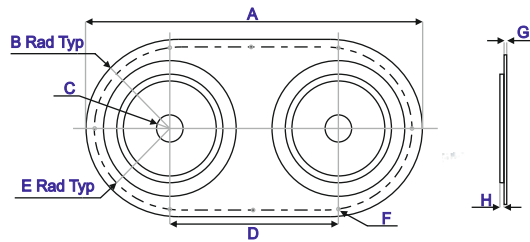
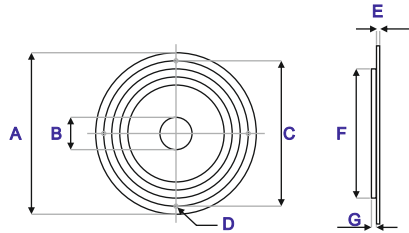
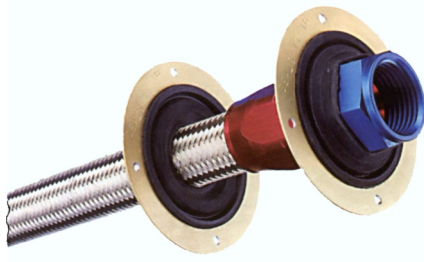
Zweck: Schutz der Gelenkköpfen vor schädlichen Umweltfaktoren, verhindern Eindringen von Schmutz und Staub in den Gleitpaarungen.

Werkstoff: Neopren CR

Montage: untere Öffnung der Schutzkappe kann mit einer Spannringzange weit gespreizt werden, um den Gelenkkopfeinzuführen

Schmierung: zur Dauerschmierung von nachschmierbaren Gelenkköpfen, mit Schmierfett füllen

Bestellung: wenn auch Distanzringe gebraucht werden, bitte achten, 1 Schutzkappe braucht 2 Distanzringe



- split grommet seals available
- trennbare Abdichtungen lieferbar
- joints séparables disponibles
- guarnizioni in gomma separabili fornibili

Grommet seals have many applications. In race cars they serve to keep unwanted smoke and fumes from entering the driver's area while protecting lines from chafing and abrading on rough surfaces.

Wiring, fuel and oil lines, air and liquid hoses, and all other lines that make up your special race car, can make an otherwise detailed installation look unfinished.

Seals-it grommet seals add the well-organized, professional appearance you want throughout your vehicle.

Die **Gummidichtungen** haben viele Anwendungen. Im Bereich der Rennfahrzeugen werden sie benötigt um unerwünschten Rauch und Dampf vom Cockpit fernzuhalten und schützen Rohre vor Abnutzung und und Kratzern durch raue Oberflächen.

Die gesamte Kraftstoffanlage, Öl-, Benzin- und Luftleitungen, die ohne die Dichtungen einen unfertigen Eindruck erwecken kann, werden durch dieselben komplettiert.

Die **Seals-it**- Dichtungen verleihen Ihrem Fahrzeug einen ordentlichen und professionellen Eindruck.

Les **garnitures de gomme** ont beaucoup d'applications. Dans le secteur des automobiles de course ils servent à empêcher que la fumée et les vapeurs non désirées entrent dans l'espace du pilote pendant que protège les tubes de l'usure et du raclage sur les surface rudes.

L'installation, les conduits du combustible et de le huile, les tubes flexibles du liquide et de l'air, ils améliorent la prestation de votre spéciale machine de course, peuvent compléter une installation qui autrement semblerait incomplète...

Les garnitures **Seals-it** offrent attends ordonné et professionnel qui désirées pour votre véhicule.

Le **guarnizioni di gomma** hanno molte applicazioni. Nel settore delle automobili da corsa servono a impedire che il fumo ed i vapori indesiderati entrino nello spazio del pilota mentre protegge i tubi dal logoramento e dal raschiamento sulle superfici ruvide.

L'impianto, i condotti del combustibile e dell'olio, i tubi flessibili del liquido e dell'aria contribuiscono a migliorano le prestazione della vostra macchina da corsa e le guarnizioni dei vari passaggio possono completare un'installazione che altrimenti sembrerebbe incompleta.

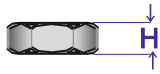
Le guarnizioni **Seals-it** offrono l'aspetto ordinato e professionale che desiderate per il vostro veicolo.



RODOBAL

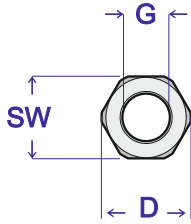
ACCESSORIES for RACECAR ENGINEERING

JAM NUTS



Metric threads,
bright nickel plated
steel or stainless
steel Aisi 304

KONTERMUTTER



Metrisches
Gewindes,
Automatenstahl
vernickelt oder
Edelstahl Ais 304

Filetage metriques,
acier nickélé poli ou
acier inoxydable Aisi
304

Filettature
metriche, in acciaio
nickelato lucido o in
acciaio inox Aisi 304

CONTRE-ECROUS



r-h

right-hand thread
Rechtsgewinde
filetage à droite
filettatura destra



l-h

left-hand thread
Linksgewinde
filetage à gauche
filettatura sinistra

CONTRODADI

Zoll-Gewinde UNF
Stahl, verzinkt

Filetages UNF
en pouces, acier
zingué

Filettature UNF
in pollici, in acciaio
zincato

PART #	G	r-h	l-h	r-h	l-h	H	SW	D
M 6	M6x1	✓	✓			3	10	11
M 8	M8x1,25	✓	✓	✓		4	13	14,5
M 10 fine	M10x1			✓		4,9	17	19,5
M 10 fine	M10x1,25	✓	✓	✓		5,8	17	19,5
M 10 normal	M10x1,5	✓	✓		✓	5,8	17	19,2
M 12 fine	M12x1,25	✓	✓	✓		7	19	21,5
M 12 normal	M12x1,75	✓	✓	✓		7	19	21,5
M 12 special	M12x1,5	✓	✓			7	19	21,5
M 14 fine	M14x1,5	✓	✓			7,2	22	25
M 16 fine	M16x1,5	✓	✓	✓		8	24	27,1
M 16 normal	M16x2		✓	✓	✓	8	24	27,1
M 18 fine	M18x1,5	✓	✓	✓		8,5	27	31
M 20 fine	M20x1,5	✓	✓	✓	✓	9	30	33,8
M 24 fine	M24x2			✓		11,8	36	41,5
M 27 fine	M27x2	✓				12	41	47
M 30 fine	M30x2			✓		14	45	51
M 36 normal	M36x3	✓				14	55	63

PART#	G	r-h	l-h	H	SW	D
10-32 = 3/16"		✓		3,1	93	10,6
UNF 1/4"	1/4" - 28 TPI	✓	✓	4	11	12,5
UNF 5/16"	5/16" - 24 TPI	✓	✓	4,8	12,5	14,3
UNF 3/8"	3/8" - 24 TPI	✓	✓	5,6	14,1	16,1
UNF 7/16"	7/16" - 20 TPI	✓	✓	6,4	17,3	19,7
UNF 1/2"	1/2" - 20 TPI	✓	✓	7,9	18,8	21,5
UNF 5/8"	5/8" - 18 TPI	✓	✓	9,5	23,5	27
UNF 3/4"	3/4" - 16 TPI	✓	✓	10,7	27,8	31,9
1" 1/4	1 1/4" - 12 TPI	✓		18,3	46,5	53,2

sizes H, SW and D
may be slightly
different

Abmessungen H,
SW und D
unverbindlich

cotes H, SW et D
peuvent changer

le quote H, SW e D
possono subire
leggere variazioni

UNF THREAD TAPPING TOOL SET

set 2 tools - HSS - ISO 529

imperial fine threads - UNF - tol. 2B

hand tapping, blind holes

UNF-GEWINDEBOHRER

Satz 2 Werkzeuge - HSS - ISO 529

Zoll-Feingewinde - UNF - tol. 2B

Manueller Einsatz - blinde Bohrung

SET OUTILS A FILETER UNF

set 2 outils - HSS - ISO 529

filetages pouces, fin - UNF - tol. 2B

usage à la main

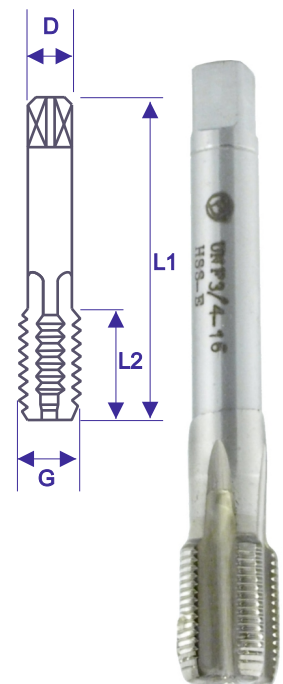
SET MASCHI A FILETTARE UNF

serie 2 pezzi - HSS - ISO 529

filettature fini in pollici - UNF tol. 2B

a mano, per fori ciechi

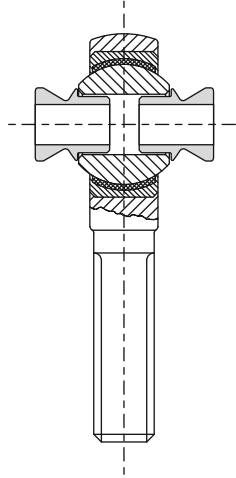
denominazione part number denomination	filettatura thread filetage	destro right-hand à droite	sinistro left-hand à gauche	G	L1	L2	D	forare.. drill.. perçer..	disp. stock dispo
THREAD TAP 5/16" UNF RH	5/16" - 24 TPI	➔		Ø 7,94	69	19	8	Ø 6,9	
THREAD TAP 5/16" UNF LH	5/16" - 24 TPI		➔	Ø 7,94	69	19	8	Ø 6,9	
THREAD TAP 3/8" UNF RH	3/8" - 24 TPI	➔		Ø 9,52	76	20	10	Ø 8,4	✓
THREAD TAP 3/8" UNF LH	3/8" - 24 TPI		➔	Ø 9,52	76	20	10	Ø 8,4	✓
THREAD TAP 7/16" UNF RH	7/16" - 20 TPI	➔		Ø 11,11	82	22	11,11	Ø 9,9	
THREAD TAP 7/16" UNF LH	7/16" - 20 TPI		➔	Ø 11,11	82	22	11,11	Ø 9,9	✓
THREAD TAP 1/2" UNF RH	1/2" - 20 TPI	➔		Ø 12,70	84	24	9	Ø 11,5	✓
THREAD TAP 1/2" UNF LH	1/2" - 20 TPI		➔	Ø 12,70	84	24	9	Ø 11,5	✓
THREAD TAP 5/8" UNF RH	5/8" - 18 TPI	➔		Ø 15,88	95	25	12,5	Ø 14,5	✓
THREAD TAP 5/8" UNF LH	5/8" - 18 TPI		➔	Ø 15,88	95	25	12,5	Ø 14,5	✓
THREAD TAP 3/4" UNF RH	3/4" - 16 TPI	➔		Ø 19,05	104	29	14	Ø 17,4	✓
THREAD TAP 3/4" UNF LH	3/4" - 16 TPI		➔	Ø 19,05	104	29	14	Ø 17,4	✓
THREAD TAP 7/8" UNF RH	7/8" - 14 TPI	➔		Ø 22,23	113	33	12,5	Ø 20,4	
THREAD TAP 7/8" UNF LH	7/8" - 14 TPI		➔	Ø 22,23	113	33	12,5	Ø 20,4	



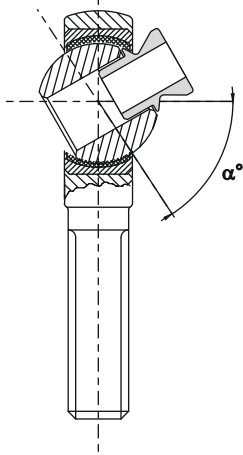
RODOBAL

ROD ENDS ACCESSORIES

ROD ENDS BUSHINGS
BORE REDUCTION
HIGHER TILT ANGLE



GELENKKOPFBUECHSEN
BOHRUNGSREDUZIERUNG
HOEHERER KIPPWINKEL



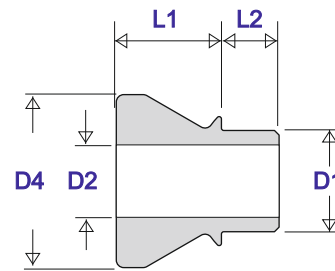
ENTRETOISES
REDUCTION ALESAGE
GRAND DEBATTEMENT



BOCCOLE DISTANZIALI
RIDUZIONE FORO
AUMENTO ANGOLO

for metric parts - fuer metrische Teile - pour embouts métriques - per teste a snodo metriche

PART#	D1 mm	D2 H7 mm	D4 mm	L1 mm	L2 mm	á
DRH 10.8	10	8	13,5	5,0	6,5	23°
DRH 12.10	12	10	16,0	7,0	7,5	23°
DRH 14.10	14	10	17,5	5,0	9,0	22°
DRH 16.12	16	12	20,0	5,0	10,0	21°
DRH 18.14	18	14	22,5	8,0	11,0	22°
DRH 20.16	20	16	25,0	8,0	12,0	21°



for inch sizes - fuer zöllige Teile - pour embouts en pouces - per teste a snodo in pollici

PART#	D1 inch	D2 mm	D4 mm	L1 mm	L2 inch	á
DRIH 10.08	C78-010	5/8" 15,875	1/2" 12,70	20,64	15,87	25°
DRIH 12.08	C78-011	3/4" 19,050	1/2" 12,70	22,23	17,46	25°
DRIH 12.08W	C78-012	3/4" 19,050	1/2" 12,70	25,40	23,81	25°
DRIH 12.10	C78-016	3/4" 19,050	5/8" 15,88	25,40	23,81	22°
DRIH 14.10	C78-013	7/8" 22,225	5/8" 15,88	25,40	26,99	21°
DRIH 16.10	C78-014	1" 25,400	5/8" 15,88	31,75	36,51	33°
DRIH 16.12	C78-015	1" 25,400	3/4" 19,05	31,75	36,51	28°



These stainless steel bushing have a double function: they work as spacers and increase the misalignment range of rod ends.

Using bushing reduces size of ball hole.

Not suitable for narrow spherical bearings **GE../COM../PNB..T**

Edelstahl-Büchsen dienen gleichzeitig als Distanzbüchsen und zur Erweiterung des Kippwinkels des Gelenkkopfes.

Einsatz von Büchsen reduziert Bohrungsdurchmesser des Innenringes (siehe Mass D2).

Nicht geeignet für schmale Gelenklager **GE../COM../PNB..T**

Les entretoises en acier inoxydable élèvent l'angle de débattement des embouts.

L'emploi des entretoises réduit l'alesage de la bille (voir dimension D2).

Pas compatible avec les rotules étroites **GE../COM../PNB..T**

Le boccole distanziali in acciaio inossidabile aumentano l'angolo di disallineamento delle teste a snodo.

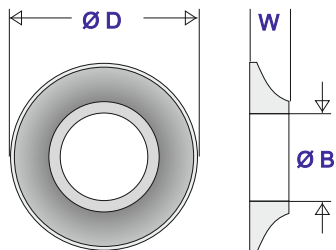
Il diametro del foro dell'anello interno risulta ridotto (cfr. quota D2).

Non compatibili su snodi sferici serie stretta **GE../COM../PNB..T**

PRO-WERKS



SAFETY WASHERS FOR ROD ENDS



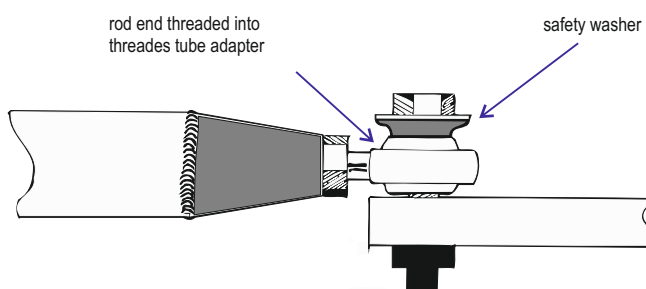
DISTANZSCHEIBEN FUER GELENKKOEPFE

RONDELLES POUR EMBOUTS

RONDELLE DISTANZIALI PER TESTE A SNODO



PART#	Ø B		Ø D		W	
	in	mm	in	mm	in	mm
73-463	5/16"	7,938	7/8"	22,23	0,170"	4,32
73-464	3/8"	9,525	1"	25,40	0,200"	5,08
73-465	7/16"	11,113	1" 1/8"	28,58	0,220"	5,59
73-466	1/2"	12,700	1" 1/4"	31,75	0,220"	5,59
73-467	5/8"	15,875	1" 3/8"	34,93	0,250"	6,35
73-468	3/4"	19,050	1" 5/8"	41,28	0,350"	8,89



Precision machined mild steel safety washers, to be used in connection with rod ends, gold zinc plated for long lasting corrosion resistance.

Radius under cut design allows increased misalignment angle.

Sicherheitdistanzscheiben aus Automatenstahl, koennen in Verbindung mit Gelenkkoepfen angewendet werden, goldfarbig verzinkt fuer bessete Korrosionsbestaendigkeit.

Form mit Radius and der Innenseite ermoeoglicht die maximale Ausnutzung des Kippwinkels des Gelenkkopfes

Les rondelles, réalisées en acier pour machines automatiques, sont utilisées avec embouts, sont zinguées couleur or pour meilleure résistance à la corrosion.

Rayon sous le dessin de coupe permet d'exploiter au mieux l'angle de maximum débattement de l'embout

Rondelle distanziali, da utilizzare con teste a snodo, realizzate in acciaio, zincate color oro per una migliore resistenza alla corrosione.

La forma raggiata permette di sfruttare al meglio l'angolo di massimo ribaltamento della teste a snodo

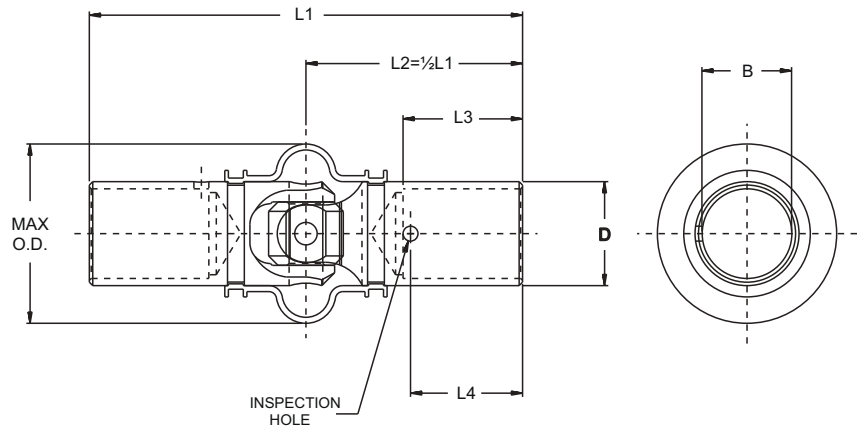


EVANTRA 1000 HP - courtesy of Mazzanti Automobili



Military Standard Joint - MS20271 Heavy Duty Series

meets or exceeds
military specifications MIL-J-6193



Part No.	Nominal Size.	∅ D +0.000 [+0.00] - 0.002 [- 0.05] in [mm]	L1 Overall Length in [mm]	L3 in [mm]	∅B +0.004 [+0.10] - 0.001 [- 0.03] in [mm]	L4 Inspection Hole Location in [mm]	Weight Maximum lb [kg]
MS20271B6	3/8"	0.372 [9.45]	2.000 [50.80]	0.500 [12.70]	0.250 [6.35]	0.437 [11.10]	0.070 [0.03]
MS20271B8	1/2"	0.495 [12.57]	2.312 [58.72]	0.625 [15.88]	0.375 [9.53]	0.562 [14.27]	0.090 [0.04]
MS20271B10	5/8"	0.620 [15.75]	2.750 [69.85]	0.750 [19.05]	0.500 [12.70]	0.687 [17.45]	0.180 [0.08]
MS20271B12	3/4"	0.745 [18.92]	3.187 [80.95]	0.875 [22.23]	0.625 [15.88]	0.812 [20.62]	0.240 [0.11]
MS20271B14	7/8"	0.870 [22.10]	3.625 [92.08]	1.000 [25.40]	0.750 [19.05]	0.937 [23.80]	0.350 [0.16]
MS20271B16	1"	0.995 [25.27]	4.062 [103.17]	1.125 [28.58]	0.812 [20.62]	1.062 [26.97]	0.550 [0.25]
MS20271B20	1-1/4"	1.245 [31.62]	4.625 [117.48]	1.187 [30.15]	1.062 [26.97]	1.125 [28.58]	0.900 [0.41]
MS20271B24	1-1/2"	1.495 [37.97]	5.250 [133.35]	1.312 [33.32]	1.250 [31.75]	1.250 [31.75]	1.500 [0.68]

Part No.	Torsional Play			Axial Tension & Compress. (±2%) lb [N]	Maximum Static Torque (±2%) lb-in [Nm]	Endurance			
	Test Angle	Test Torque (±2%) lb-in [Nm]	Limit Degrees (±2%)			Oper. Angle	Torque Load (±2%) lb-in [Nm]	RPM	Run Time Hours
MS20271B6	0	4 [0.45]	0.83	500 [2224]	200 [23]	15	30 [3]	120	5
MS20271B8	0	4 [0.45]	0.62	1000 [4448]	600 [68]	15	90 [10]	120	5
MS20271B10	0	4 [0.45]	0.50	1500 [6672]	1080 [122]	15	162 [18]	120	5
MS20271B12	0	4 [0.45]	0.42	2000 [8896]	1900 [215]	15	285 [32]	120	5
MS20271B14	0	8 [0.90]	0.36	3500 [15569]	3000 [339]	15	450 [51]	120	5
MS20271B16	0	8 [0.90]	0.32	5000 [22241]	4700 [531]	15	705 [80]	120	5
MS20271B20	0	8 [0.90]	0.24	7000 [31138]	9500 [1073]	15	1425 [161]	120	5
MS20271B24	0	8 [0.90]	0.20	9000 [40034]	14500 [1638]	15	2175 [246]	120	5

Metric values shown for reference only

Belden is one of two certified (QPL) manufacturers of MS20270 & MS20271 series universal joints; products meets or exceed MIL-DTL-6193 specifications.

MS products have been commonly used as a baseline for top performance motorsports and aerospace applications, because of their strong and compacy construction.

Each joint is permanently lubricated and covered with a silicone rubber boot for protection. Connection with shafts by cross-bolting, pinning, or welding to a close fitting shaft or torque tube.

Belden est l'un des deux fabricants certifiés (QPL) des joints universels des séries MS20270 et MS20271; les produits répondent ou dépassent les spécifications MIL-DTL-6193. Les produits MS ont été couramment utilisés comme référence pour les applications de sport automobile et aérospatial de haute performance, en raison de leur construction robuste et compacte.

Chaque joint est lubrifié en permanence et recouvert d'une botte en caoutchouc silicone pour la protection. La connexion avec les arbres se fait par boulonnage croisé, chevillage ou soudage sur un arbre ou un tube de torsion.

Belden è uno dei due produttori certificati (QPL) dei giunti cardanici serie MS20270 e MS20271; i prodotti soddisfano o superano le specifiche MIL-DTL-6193.

I prodotti serie MS sono di riferimento per ottenere le migliori prestazioni nei settori motorsport e aerospaziale, grazie alla loro struttura robusta e compatta.

Ogni giunto è lubrificato permanentemente e protetto da un soffietto in gomma siliconica che lo preserva dalla contaminazione. Collegamento con alberi avviene mediante imbullonatura incrociata, fissaggio con spine o saldatura all'albero o al tubo di torsione.

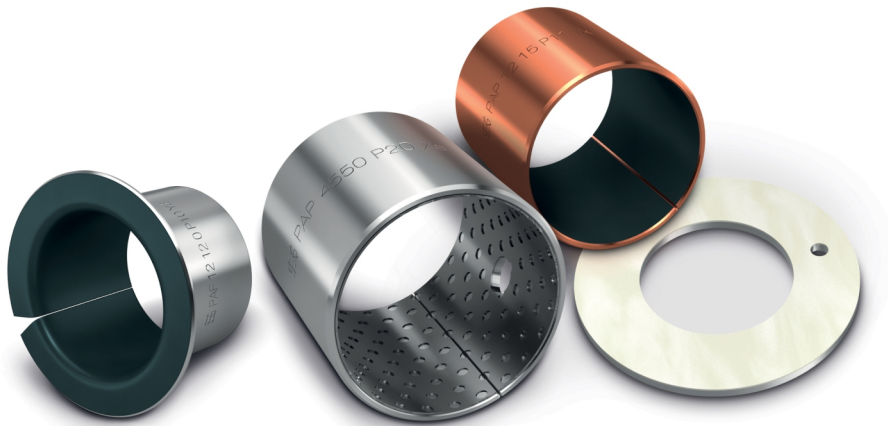


BUSHINGS PLAIN BEARINGS

GLEITLAGER

COUSSINETS à GLISSEMENT

BOCCOLE A STRISCIAMENTO



**ORIGINAL
PERMAGLIDE®**

original products by
KS Gleitlager GmbH



By using plastic on a metallic base material, a material combination is created which offers both good sliding characteristics and the bearing capacity and thermal conductivity of metal.

The use of solid lubricants in the plastic matrix makes it possible to use **Permaglide®** plain bearings from material group **P1** (including **P10**) **without oil or grease lubrication**.

It is not always possible to carry out plain bearing tasks using products made from maintenance-free material. And in these cases, **low-maintenance P2** materials are the perfect solution.

Durch die Verwendung eines Kunststoffes auf metallischem Grundwerkstoff entsteht eine Werkstoffkombination, die die guten Gleiteigenschaften mit der Tragfähigkeit und der Wärmeleitfähigkeit von Metallen verbindet.

Die Verwendung von Festschmierstoffen in der Kunststoffmatrix ermöglicht den **wartungsfreien Einsatz** ohne Öl- oder Fettschmierung, das sind die **Permaglide®**-Gleitlager der Werkstoffgruppe **P1**, inkl. **P10**.

Nicht in allen Fällen ist es möglich, die Aufgaben einer Gleitlageranwendung mit Produkten aus wartungsfreien Materialien zu lösen. Für diese Fälle stehen die **wartungsarmen P2**-Werkstoffe zur Verfügung.

Permaglide®, une marque déposée de KS Gleitlager, incarne un glissement permanent à faible usure.

L'emploi de plastique sur un substrat métallique permet d'obtenir un matériau composite qui allie les bonnes propriétés de glissement du plastique à la charge admissible et à la conductivité thermique des métaux. Grâce à l'utilisation de lubrifiants solides dans la matrice plastique, le produit ne nécessite **aucune lubrification** par huile ou graisse. Tout ceci caractérise les coussinets **Permaglide®** du groupe de matériaux **P1**, y compris **P10**.

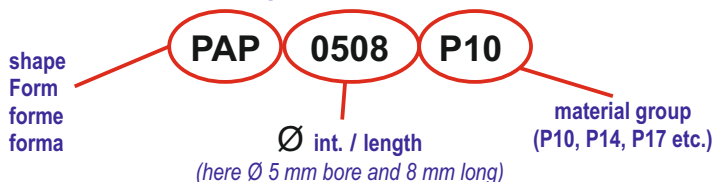
Il n'est pas toujours possible de réaliser les fonctions découlant d'une application des coussinets avec des produits composés de matériaux sans entretien. Les matériaux **P2 à faible entretien** sont disponibles pour de tels cas

Permaglide®, è un marchio registrato di KS Gleitlager e rappresenta al meglio le caratteristiche di prodotti a strisciamento ad usura limitata.

L'uso di lubrificanti solidi in una matrice plastica rende possibile l'impiego dei cuscinetti a strisciamento **Permaglide®** del gruppo materiali **P1** (compreso **P10**) **senza alcuna lubrificazione** con olio o grasso.

Quando l'applicazione non renda possibile utilizzare cuscinetti del tutto esenti da manutenzione, la soluzione ideale è rappresentata da cuscinetti delle serie costruttive **a manutenzione ridotta**, gruppo materiali **P2**

PART NUMBER example:



full catalogue, paper or .pdf

Katalog, auf Papier oder .pdf-Datei

catalogue papier ou fichier .pdf

catalogo completo cartaceo o .pdf





INDUSTRIAL PRODUCTS

INTERNATIONAL MASTER DISTRIBUTORS

for

AURORA®

RODOBAL®

**ORIGINAL
PERMAGLIDE®**

Seals-it®

International suppliers of high performance mechanical parts, specialized for rod ends and spherical bearings.

Extensive range of sizes and construction series, for motorsports applications: rally, track, go-karts, tuning, high performance and special vehicles. Stainless units for boating applications.

High load capacity, wear resistant, shock resistant, vibration resistant, maintenance free.

Inch and metric sizes, normal and special threads.

Accessories: jam-nuts, rubber boots and lateral sealings.

Broad inventory in our warehouse in Genoa, Italy.

Quick delivery by international express forwarder on agreed rates



Weltweiter Vertrieb von hochqualitativen mechanischen Teilen, Spezialist für Gelenklager und Gelenkköpfe.

Breite Palette von Typen und Ausfertigungen, Teile für Motorsporteinsatz: Rally, Rennstrecke, Go-Karts, Tuning, Hochleistung- und Sonderfahrzeuge. Rostfreie Teile für maritime Anwendungen.

Hohe Belastbarkeit, beständig gegen Verschleiss, Stösse, Vibrationen, wartungsfrei.

Zoll- und metrische Abmessungen, Normal- und Feingewinde.

Zubehör: Kontermutter, Schutzkappen und Abdichtungen.

Grosser Sortiment ab unserem Lager in Genua, Italien.

Schnelle Ablieferung durch internationale Express-Dienste, zu vorverhandelten Frachtkosten.



Distributeur international de composants mécaniques de qualité, spécialisé en embouts et rotules.

Gamme étendue de référence (tailles, séries) pour compétition: rallye, circuit, karting, tuning, voitures de haute performance et véhicules spéciaux. Séries inoxydables pour applications marines.

Haute portée, résistance à l'usure, aux chocs et aux vibrations, sans entretien.

Tailles disponibles en métrique et en pouces; filetages normaux et fins

Accessoires: contre-écrous, protections et joints latéraux.

Un choix important de produits en stock sur notre site de Gênes.

Livraison rapide par transitaires express internationaux (tarifs agréés)

Distributore internazionale di componenti meccanici di qualità, specializzato in teste a snodo e snodi sferici.

Grande gamma di misure e serie costruttive per impieghi motorsport: rally, pista, go-karts, elaborazione, vetture di alta gamma e veicoli speciali. Tipi inox per impieghi marini.

Alta capacità di carico, resistenza ad usura, urti e vibrazioni, esenti da manutenzione.

Quote metriche ed in pollici, filettature normali e speciali.

Accessori: contro-dadi, protezioni in gomma e tenute laterali.

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