WE MOVE the WORLD

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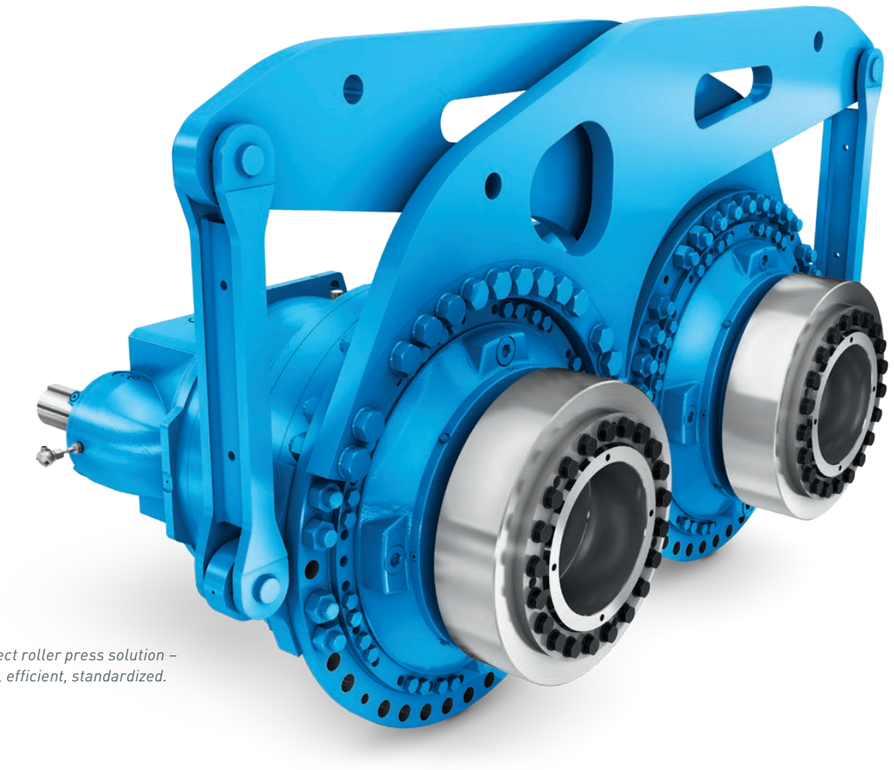
FLENDER GEAR UNITS



PRESS OUT EVEN MORE AVAILABILITY.

PLANUREX 3: efficiency and reliability for roller presses

FLENDER



The perfect roller press solution – compact, efficient, standardized.

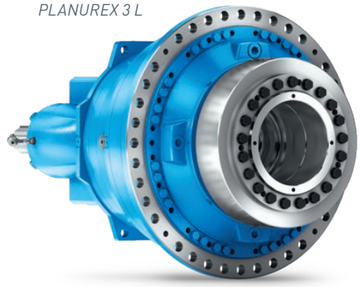
FLENDER GEAR UNITS | PLANUREX 3 | ROLLER PRESSES

Ready to use: the perfect solution for your roller presses – from Flender.

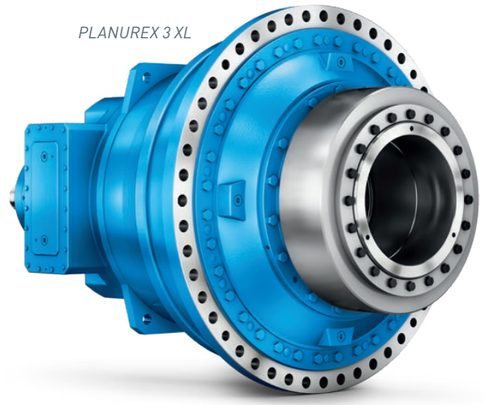
EXTREMELY STRONG.
EXTREMELY COMPACT.
EXTREMELY RESILIENT.

The standard solution PLANUREX® 3 was developed for applications that place high demands on compactness, quality and price-performance ratio. This makes PLANUREX 3 the perfect drive for roller presses. The high torque density of the design allows for very small roller spacing – its low weight reduces the loading on the gear unit and machine. High additional forces from the universal joint shaft and due to the acceleration of the movable rollers are absorbed by the standard bearings. The high overload capacity provides for operational reliability and stabilizes your process.

PLANUREX 3 L



PLANUREX 3 XL



Flender gear units have been proving their worth in this application for decades. Energy efficiency, reliability and efficient use of the available space are the most important factors that motivate our customers.

That is why the Flender PLANUREX 3 planetary gear units are the first choice for grinding rollers and compaction presses.

The immediate advantages of using PLANUREX 3 gear units lie in the cost benefits for drive systems and roller presses. These are influenced by various factors: Gear units with a high power density are significantly lighter and thus reduce the load acting on the driven machine. Optimized gear geometries and meshing reduce the friction and increase the energy efficiency. New gear design and top manufacturing quality increase the reliability and service life and optimize the maintenance costs. Compact gear units allow smaller and more economical driven machines and drive motors to be used. In addition, they enable the center distance between the rollers to be small and reduce the gap width to a minimum for an optimum grinding process.

FLENDER GEAR UNITS | PLANUREX 3 | ROLLER PRESSES



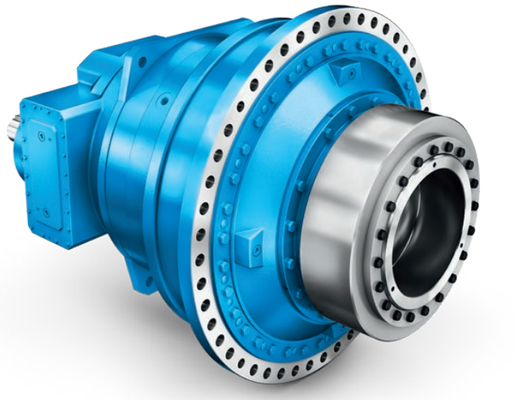
The perfect harmony of all drive components plays an important role, whether for grinding or for briquetting.

YOUR BENEFITS

- **Up to 40% higher torque** for the same installation dimensions compared to the PLANUREX 2 roller press drive and competitors' products
- **Maximization of plant availability** through optionally integrated Flender measuring systems
- **Low operating costs and high efficiency** due to optimized gear geometries and the high level of manufacturing quality
- **Precise adjustment of the output speed** possible due to a stepless range of transmission ratios
- **Shortest delivery times** with a standardized roller press solution
- **Smallest achievable roller distances** thanks to top performance in a small installation space
- **Long service life** through application-oriented design and top-class quality
- **High-performance input shaft bearings** to absorb additional external forces emanating from the universal joint shaft and with an optional protective device for load-free rotation over a short period of time

OPTIMUM COORDINATION OF THE DRIVE SYSTEMS.

Uneven loads, extreme axial and radial forces, high dust concentrations – grinding iron ore, limestone and clinker is characterized by harsh working conditions. Roller presses are especially demanding applications that require top performance and maximum reliability from the drive systems.



Our drive concepts are efficient, standardized solutions that maximize the availability of your plant – not only because they are optimized for each application, but also because they are perfectly coordinated with each other.

Flender drive systems enjoy by far the best reputation in the cement industry. Flender draws its expertise and technological leadership from decades of experience and hundreds of components installed. Here, top quality is the basis for durable and reliable drives. At the same time, state-of-the-art product design and the best engineering always guarantee the highest level of productivity for your plant. Flender offers highly standardized and perfectly coordinated drive systems for roller presses from a single source.

The main advantages for you are a high level of plant availability and low interface risks. We guarantee both the security of your investment and your comfort, because we offer you the entire PLANUREX 3 drive concept from a single source.

Consultancy

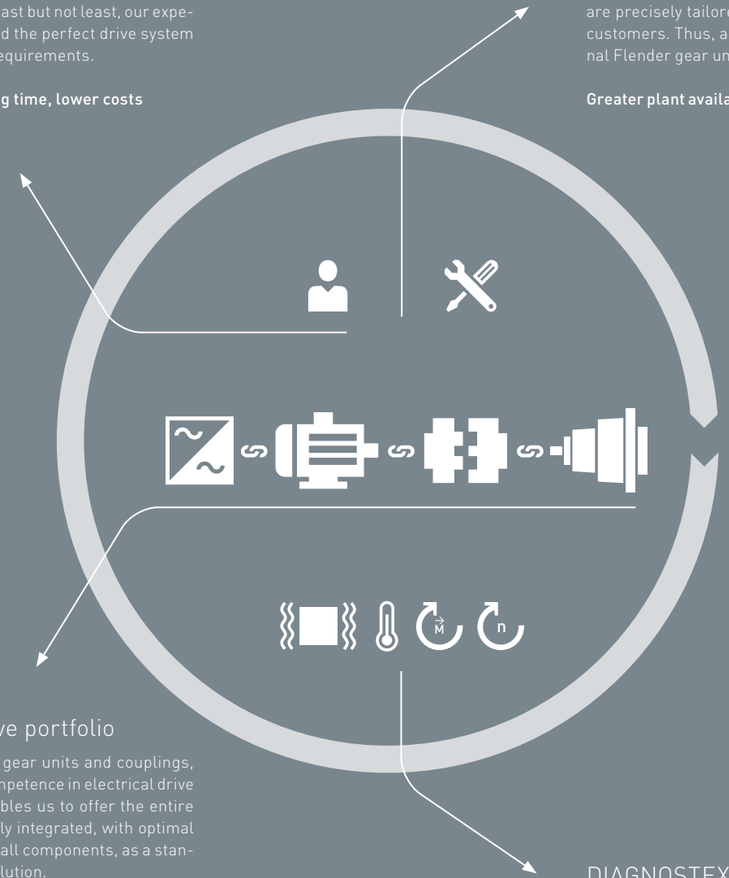
Our customers exploit our interdisciplinary know-how, our application expertise, our innovative strength and, last but not least, our experience in order to find the perfect drive system for their individual requirements.

Reduced engineering time, lower costs

Flender service

From diagnostics and support to spare part and repair services to maintenance and retrofitting services – the Flender service portfolio enables individual solutions to be created that are precisely tailored to meet the needs of our customers. Thus, a gear unit remains an original Flender gear unit.

Greater plant availability, lower life cycle costs



Integrated drive portfolio

We not only provide gear units and couplings, but also have the competence in electrical drive technology that enables us to offer the entire drive train – perfectly integrated, with optimal interaction between all components, as a standard or individual solution.

Fewer interface risks, greater efficiency

DIAGNOSTEX

The perfect drive precisely fulfills the torque requirement and is energy-efficient and cost-effective – in a nutshell: it is tailor-made for the application. Flender DIAGNOSTEX makes our gear units digital. It paves the way for these perfect solutions and at the same time forms the basis for condition-based maintenance.

Industry 4.0, lower costs

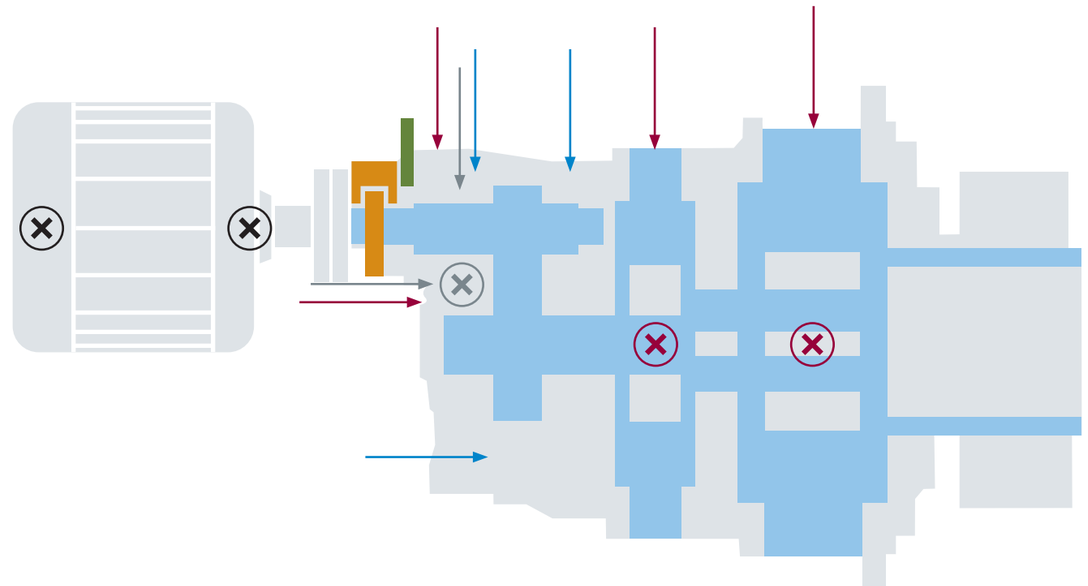
DIAGNOSTEX

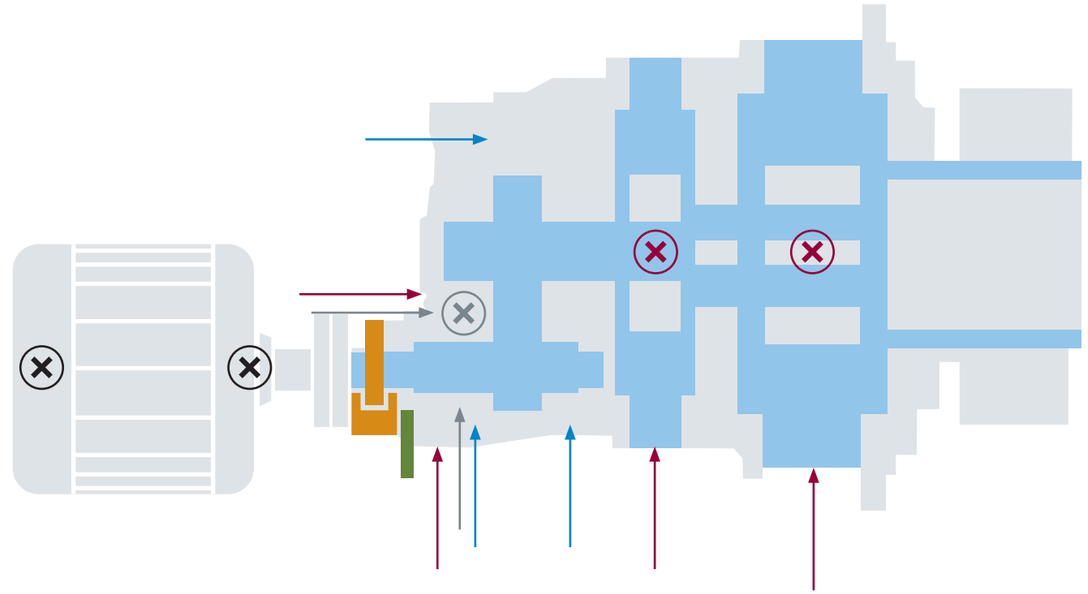
In DIAGNOSTEX® sensors measure deviations from the target state of our gear units, allowing them to be analyzed and evaluated in order to achieve maximum plant availability.

DIAGNOSTEX is the next step toward the digital future of drive technology. DIAGNOSTEX makes our gear units digital, indeed almost living entities, by enabling them to feel pain. This property opens up entirely new horizons for the preventive maintenance of our mechanical drive technology. Suddenly, it becomes possible to install an effective diagnostics system and receive precise information from gear unit experts regarding the early detection of damage via remote service. This allows the necessary measures to be taken in good time. In conjunction with an optimized spare parts management, maintenance costs are reduced to an absolute minimum and gear unit failures are virtually eliminated.

SENSOR CONFIGURATION FOR TWO PLANUREX 3 GEAR UNITS

- 12× acceleration for gear units
- 4× acceleration for motors
- 6× temperature sensors
- 2× speed
- 2× torque
- 6× vibration transmitter





DIAGNOSTEX enables a large number of measuring points to be used for diagnostics. It is always an individual choice as to what extent these are used.

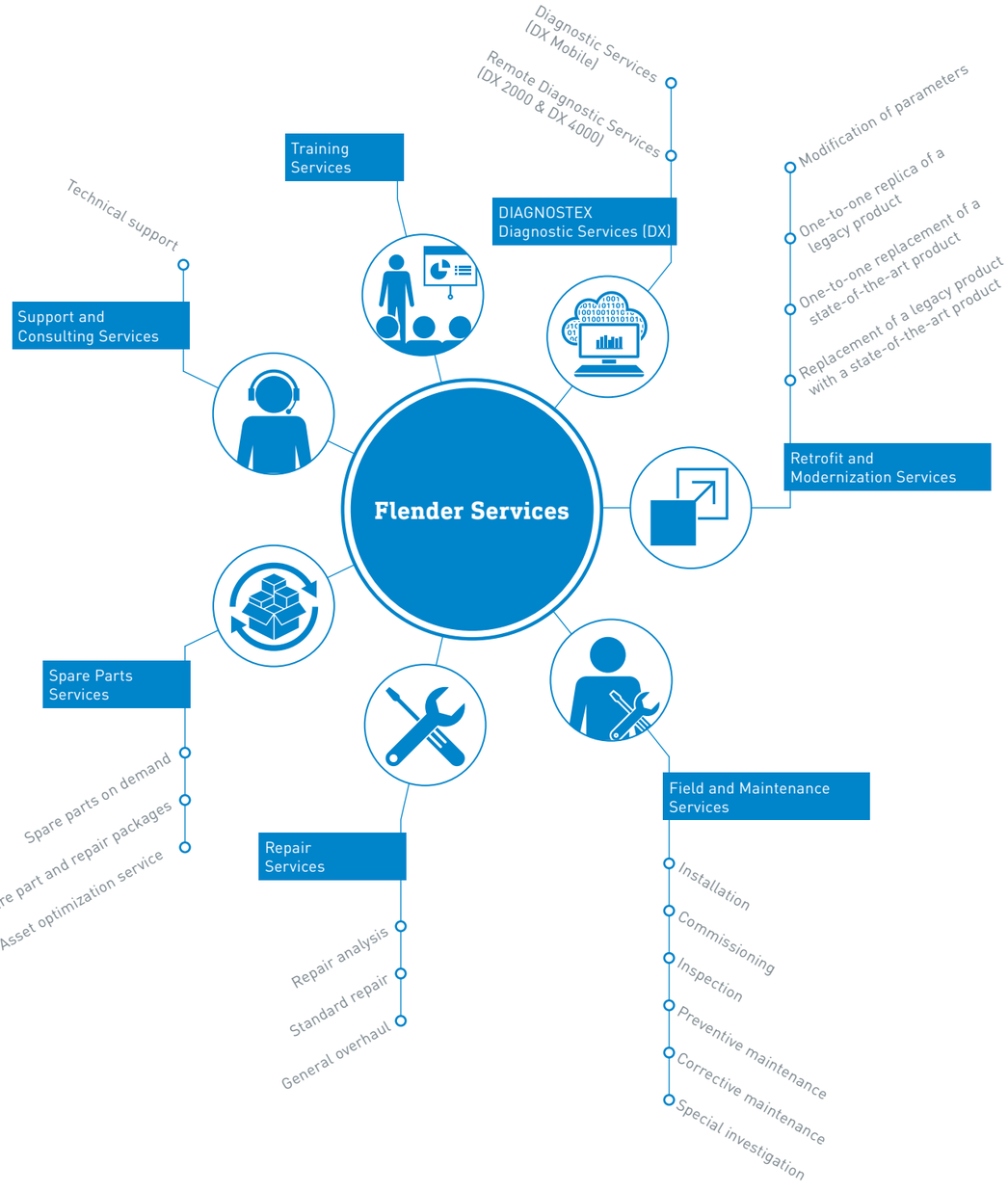


SERVICE

Constantly increasing demands make it more and more important for industrial plants to work at maximum productivity and efficiency. Flender Services provide industrial, raw material extraction and power generation companies with the decisive competitive advantage. Due to the high cost pressure, increasing energy prices and ever more stringent environmental regulations, our service is becoming a determining factor for success.

Let our service experts help you from the planning and development to the operation up to the modernization of your plant. Profit from our experience and our in-depth know-how of your application – in more than 100 countries, seven days a week and around the clock.
Reduce standstills, minimize downtimes, and increase the productivity, flexibility, and cost efficiency of your plant.

OUR RANGE OF SERVICES FOR GEAR UNITS AND COUPLINGS AT A GLANCE.



PROCESS RELIABILITY

Profit from the high efficiency provided by the PLANUREX 3 gear units. Rely on a very high power density and exploit the design options provided by the exceedingly compact gear unit series. Save installation space, weight and costs.

The series' harmonically spaced torque steps avoid an oversized design, ensure that the solution is very close to the operating point of your application and make it easier to select the most suitable gear unit solution. PLANUREX 3 was designed using the latest methods based on many years of experience in the field.

3-D CAD design and the use of the latest FE methods are a matter of course. At least with PLANUREX 3.

Use our data when designing your plant and profit from greater flexibility. Increase the reliability of your plant to ensure fail-safe operation under overload conditions. Due to the high overload capacity of PLANUREX 3 corresponding to twice the catalog torque, you benefit from the best gear unit for safe processes.



FLENDER GEAR UNITS | PLANUREX 3 | ROLLER PRESSES

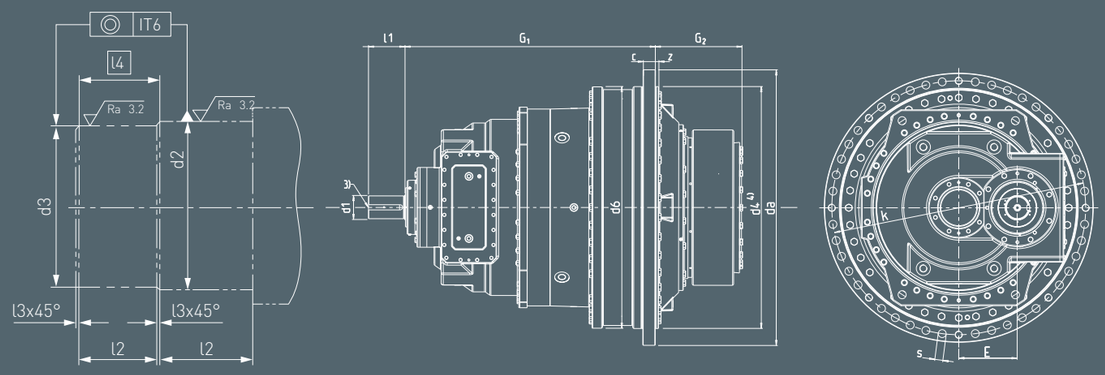


PLANUREX 3 COMPACT

DIMENSIONS AND WEIGHTS OF THE PLANUREX 3 GEAR UNIT FOR ROLLER PRESSES

	Size Type P3DH	Nominal output torque	Shaft end on drive side				Shaft of the driven machine														Flange screws		Weight (approx.)	Oil quantity (approx.)
		Nm	mm				mm					mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		t	l
		T2N	i < 90 d1 1)	i < 90 l1	i ≥ 90 d1 1)	i ≥ 90 l1	d2 g6	d3 g6	l2	l3	l4	c	da	d4 h7	d6	E	G1	G2	k	z	s	Qty No.	2)	
PLANUREX 3 XL	775	5,450,000	220	350	200	310	850	840	350	5	355	120	2,645	2,335	2,330	580	2,420	832	2,510	30	78	40	35	1,250
	740	4,740,000	220	350	200	310	830	820	345	5	350	110	2,490	2,190	2,180	580	2,379	807	2,355	30	78	40	32	1,220
	700	4,010,000	200	310	180	310	750	740	320	5	325	100	2,305	2,005	2,005	500	2,110	756	2,170	30	78	40	24	830
	665	3,430,000	200	310	180	310	710	700	303	5	308	95	2,255	1,975	1,970	500	2,096	692	2,130	30	70	40	23	810
	635	3,030,000	180	310	170	270	695	685	275	5	280	90	2,105	1,810	1,810	460	1,967	662	1,980	30	70	40	19	610
	620	2,780,000	180	310	170	270	640	630	272	5	277	85	2,040	1,760	1,760	460	1,954	635	1,915	30	70	32	18	600
	595	2,470,000	170	270	160	270	620	610	265	5	270	85	1,945	1,660	1,645	420	1,894	617	1,820	30	70	32	15	490
	575	2,260,000	170	270	160	270	600	590	260	5	265	80	1,905	1,630	1,610	420	1,840	610	1,780	30	70	32	14	480
	545	1,930,000	160	270	140	240	570	560	242	5	247	80	1,805	1,530	1,525	390	1,690	580	1,680	30	70	32	12	400
	525	1,700,000	160	270	140	240	550	540	225	5	230	75	1,745	1,495	1,485	390	1,656	565	1,630	30	62	32	11	390
			i < 80		i ≥ 80																			
PLANUREX 3 L	500	1,465,000	160	270	130	210	460	450	215	5	220	63	1,515	1,282	1,274	312	1,511	503	1,408	30	62	32	6.8	280
	475	1,260,000	160	270	120	210	440	430	191	5	196	58	1,470	1,225	1,218	296	1,451	465	1,360	27.5	62	28	5.9	240
	445	1,050,000	140	240	120	210	410	400	188	5	193	57	1,360	1,150	1,143	280	1,389	451	1,265	30	52	32	4.8	200
	420	870,000	120	210	100	180	390	385	180	2.5	182.5	53	1,265	1,080	1,074	260	1,287.5	433	1,180	25	45	36	4.1	165
	395	725,000	120	210	100	180	370	365	164	2.5	166.5	50	1,210	1,020	1,015	243	1,216	410	1,125	24.5	45	36	3.5	135
	370	600,000	120	210	90	160	350	345	164	2.5	166.5	45	1,108	953	948	238	1,180	402	1,035	29.5	39	40	2.9	115
	345	480,000	110	190	80	140	330	325	152	2.5	154.5	45	1,045	890	885	216	1,080	367	975	29.5	39	36	2.3	95

1) Shaft diameter d1 ≤ 100 → tolerance m6; shaft diameter d1 > 100 → tolerance n6. 2) Weight without shrink disk and oil filling.



3) Shaft end d1 with parallel key acc. to DIN 6885 Part 1 and centering hole.
4) Minimum possible roller distance in operation = d4 (by flattening on the outer diameter).

BENEFIT FROM:

- Smallest achievable roller distances
- A harmonious standard modular system
- Numerous sizes

PLANUREX 3 FOR ROLLER PRESSES

- Table valid for roller press drives based on application factor KA = 2.0 (ISO)
- Stepless range of transmission ratios from i = 1:45 up to 1:110

